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Climatological Data for November, 1909.
DISTRICT No. 1, NORTH ATLANTIC STATES.

WILFORD M. WILSON, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

The month of November, 1909, was characterized by unusually mild and pleasant weather throughout the greater part of the district; a decided and general deficiency in precipitation, except for a small area on the New England coast, and the absence of severe storms or sudden changes of temperature.

The drought continues serious over the Delaware, Susquehanna, Potomac, and Rappahannock watersheds with the water in these streams and their tributaries at a very low stage.

TEMPERATURE.

The average temperature for the month was everywhere above the normal, the departures being generally greatest in the inteior and least along the coast. In parts of West Virginia, Pennsylvania, and New York the daily excess of temperature ranged from 5° to 8°, while along the coast from Virginia to Maine the departures were generally less than 3°. The month as a whole was the warmest November, in most parts of the district, since 1902, and among the warmest in the past 25 years. The maximum temperatures were generally not excessively high, but the large number of days when the average temperature was above normal was quite remarkable. The minimum temperatures as a rule were not so low as usually occur in November, and while freezing weather occurred at frequent intervals, no exceptionally low temperatures were reported.

The month opened decidedly warm, especially over the southern part of the district where the maximum temperatures of the month were generally recorded on the 1st or 2d. In Virginia, Delaware, Pennsylvania, and New Jersey the temperature on these days ranged generally from 75° to 80°; at a few stations it was above 80° and at 1 station, Annapolis, Md., the maximum reached 85°. Moderately warm weather prevailed also over New England and New York on these days, but the temperatures were not generally so high as on the 12th and 13th, when the second warm period of the month overspread the district. On these dates the heat was excessive for the season, especially at points in the interior, and at many stations the maximum temperature recorded on the 12th was higher than any previous November record.

The third warm period of the month occurred about the beginning of the third decade and while general over the district was not so prolonged nor was the heat so marked as during the periods above mentioned.

The most general and pronounced cold periods of the month occurred about the 10th, 19th, and 30th, although the minimum temperature of the month was recorded at many individual stations on other dates.

Following the warm period at the opening of the month there was quite a rapid decline in temperature, especially during the 5th and 6th, which culminated in moderately low temperatures in parts of the district on the 7th and over most of the district by the 10th.

The cold weather at the close of the second decade was more noticeable over the southern part of the district than elsewhere and was occasioned by the presence of an extensive area of high barometric pressure over the South Atlantic States. Freezing temperatures were general at this time except along the coast from Long Island southward.

The most pronounced cold period of the month, especially in the northern part of the district, occurred on the 30th when another area of high pressure, accompanied with moderately low seasonal temperatures, overspread the North Atlantic States. In New England and New York the minimum temperature on the 30th ranged generally from 10° to 20° below freezing. The lowest temperature reported in the district was 8° at New Lisbon, Otsego County, N. Y., on the 30th.

PRECIPITATION.

The average precipitation for the district as a whole was much below the November normal, only 2 small areas, the central part of Maine and the eastern part of Massachusetts, receiving more than the average amount. For New England the average for the month was nearly 3 inches, which, although over 1 inch below the normal, is the highest average since 1900. The heaviest rainfall in the district occurred along the Massachusetts coast, in the vicinity of Cape Cod, where the total for the month averaged somewhat over 6 inches, and the least, 1 inch or less, over the lower Susquehanna, the Potomac, and Rappahannock watersheds.

The drought brought about by the deficiency of precipitation which has been practically continuous since July 1 in that part of New York, Pennsylvania, Maryland, Delaware, and Virginia included in the district, has not been relieved, except in a few localities, by the rains of the current month. The soil is very dry, the streams low, and the outlook for water supply for stock and other purposes for the winter months extremely discouraging.

The rains during the first decade were generally light and scattered both as to distribution and time, some localities receiving a fairly copious rainfall while at other points little or none occurred. On the 17th rains were quite general over the district, but the amounts were scanty. The most general and widespread precipitation of the month occurred with the storm that passed over the district from the 23d to the 25th. In the more northerly sections, particularly New England, New York, and parts of Pennsylvania, the precipitation was mostly in the form of snow, while elsewhere snow mingled with sleet and rain occurred. The heaviest precipitation from this storm, which, however, did not extend far into the interior, was along the New England coast, excessive precipitation, 2.50 inches or more in 24 hours, being reported from 6 stations in Massachusetts and 1 in Maine. At Plymouth, Mass., a 24-hour rainfall of 4.36 inches was recorded on the 23d and 24th.

The snowfall during this storm was moderately heavy for the season and was general over the northern and central parts of the district. The fall was heaviest in eastern New York and the northeastern part of Pennsylvania, where the average was about 5 inches. At a number of stations in the lower Hudson Valley the total snowfall for the month ranged from 8 to 14 inches.

RIVER CONDITIONS.

There has been no increase in the volume of water in the principal rivers and streams in most parts of the district during the month. In parts of New England, where the rivers and streams were well filled by the copious rains in September and again during the latter part of the current month, the flow of water is generally good, but for the remainder of the district the gage readings show an extremely low stage.

The average readings for the month from 6 stations on the Mohawk and its tributaries was about 1.6 feet above the zero, and for 3 stations above tidewater on the Hudson, 1.8 feet.

There was a slight temporary rise in most streams about the 25th.

The readings on the Delaware at Port Jervis, Phillipsburg, and Trenton averaged about 1.0 foot below those of November, 1908, while the Susquehanna at Harrisburg and Wilkes-Barre averaged about 0.5 feet below last year.

MISCELLANEOUS.

The number of days on which precipitation occurred averaged 7 for the district as a whole and ranged from 3 in Virginia to 10 in New England. The average number of clear days was 13; partly cloudy, 8, and cloudy, 9. The amount of cloudiness for the month was greatest over New England and the northern part of New York, and least over Virginia.

The variation in the amount of sunshine received in different parts of the district, as shown by the records of recording instruments, presents some interesting features.

It is well understood that the number of hours the sun is above the horizon and, therefore, the possible duration of sunshine varies with the season and the latitude. For the month of November the total possible sunshine for the southern extremity of the district was about 302 hours and for the northern extremity about 289 hours, making a total variation of about 13 hours. The average actual number of hours of sunshine for the district as a whole was 141, which is about 50 per cent of the possible. There was much less sunshine in New England during the month than elsewhere, the percentage being 41 against 55 for the remainder of the district. The greatest percentage was 67 at Washington, D. C., and the least 29 at Burlington, Vt. There were 9 days during the month when the sunshine averaged 80 per cent of the possible, or more, 11 days when the average was between 20 and 80 per cent, and 10 days with 20 per cent or less.

TABLE 1.—*Climatological data for November, 1909. District No. 1, North Atlantic States.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Maine.																			
Bar Harbor	Hancock	20	23	41.4	+ 2.5	62	21	20	19†	29	5.77	+ 0.62	2.75	2.0	10	11	6	13	sw.	William Miller.
Cornish	York	778	54	39.8	+ 4.7	74	12	18	19	30	2.06	− 1.53	0.40	5.0	10	7	11	12	n.	T. H. West.
Eastport	Washington	53	37	40.2	+ 3.4	57	3	20	19	24	3.62	− 0.46	1.27	2.4	13	6	7	17	w.	U. S. Weather Bureau.
Fairfield	Somerset	90	24																	E. F. Parker.
Farmington	Franklin	450	12	37.6	+ 4.5	70	12	15	10	37	3.82	− 0.54	1.84	3.5	12	7	12	11	ne.	State Normal School.
Gardiner	Kennebec	163	17	40.2	+ 3.5	67	12	19	10	33	3.88	− 0.28	1.60	4.5	12	10	6	14	sw.	S. D. Soule.
Greenville	Piscataquis	1,000	5	34.3	.....	62	12	12	19	30	4.57	.....	1.66	6.2	13	.....	.....	.....	se.	U. S. Weather Bureau.
Houlton	Aroostook	362	7	36.0	.....	57	3	14	19†	29	2.34	.....	1.60	5.0	6	14	3	13	nw.	Bangor & Aroostook R.R.
Lewiston	Androscoggin	185	35	37.0	+ 1.3	66	12	18	10	34	2.79	− 1.64	0.86	3.1	12	8	8	14	nw.	Union Water Power Co.
Madison	Somerset	257	6	35.3	.....	58	13†	12	19†	27	4.07	.....	1.42	3.8	8	10	4	16	nw.	Wm. Jardine.
Millinocket	Penobscot	386	6	37.1	.....	60	12	11	19†	32	4.92	.....	1.29	5.8	12	7	5	18	sw.	H. S. Ferguson.
North Bridgton	Cumberland	450	16	40.0	+ 3.0	73	12	18	19	37	2.71	− 2.35	1.41	.....	10	5	14	11	sw.	G. E. Chadbourne.
Orono	Penobscot	129	40	39.1	+ 4.9	63	12	16	10	35	4.14	− 0.03	1.80	0.5	11	8	6	16	sw.	Agricultural Exp. Stat'n.
Patten	Penobscot	550	7	34.8°	.....	55°	3	11°	20	32°	4.19°	.....	1.41°	6.0°	9°	8°	4°	13°	w.	Bangor & Aroostook R.R.
Portland	Cumberland	99	38	40.9	+ 3.3	66	12	22	30	27	2.83	− 0.97	1.33	2.8	9	7	11	12	n.	U. S. Weather Bureau.
Rumford Falls	Oxford	595	16	36.8	+ 2.7	60	12	18	10	26	3.31	− 1.42	1.68	3.2	12	16	5	9	nw.	Chas. A Mixer, C. E.
Van Buren	Aroostook	510	7																	Bangor & Aroostook R.R.
Winslow	Kennebec	90	14	38.0	.....	65	12†	16	9†	36	4.35	.....	1.97	3.8	12	14	7	9	w.	Hollingsworth & Whitney
New Hampshire.																				
Alstead Center	Cheshire	1,120	5	38.4	+ 3.4	65	12	16	30	25	1.69	− 2.83	0.67	4.0	11	11	8	11	sw.	Frank Dewing.
Benton	.....	.....	.....	38.8[b]	.....	70[b]	12	14[b]	30	30[b]	1.56[b]	.....	1.00[b]	1.3[b]	5[b]	11	9	10	nw.	State Sanatorium.
Bethlehem	Grafton	1,470	17	36.0	+ 3.4	65	12	7	30	30	2.47	− 1.24	0.89	10.0	12	12	4	14	w.	Benj. Tucker.
Concord	Merrimac	350	49	40.8	+ 4.0	74	12	17	10	35	2.12	− 1.27	1.26	3.1	8	8	5	17	nw.	U. S. Weather Bureau.
Durham	Stafford	88	14	41.4	+ 2.4	75	11	17	30	37	2.47	− 2.01	1.28	2.0	6	16	5	9	nw.	Agricultural Exp. Stat'n.
Franklin	Merrimac	440	10	40.0	.....	73	12	15	19	36	2.65	.....	1.40	2.0	11	10	3	17	nw.	Dr. C. P. Webster.
Grafton	Grafton	883	23	39.0[a]	+ 4.8	69[a]	12	10[a]	19	37[a]	2.20[a]	− 1.42	1.45[a]	4.0[a]	7[a]	11	7	12	w.	P. R. Kimball.
Hanover	Grafton	603	75	38.8	+ 5.2	69	12	13	19	35	2.05	− 0.98	0.70	10.2	12	6	8	16	nw.	Dartmouth College.
Keene	Cheshire	506	24	40.6	+ 3.9	68	12	13	10	36	1.60	− 2.32	0.55	2.5	10	9	10	11	nw.	Samuel D. Wadsworth.
Nashua	Hillsboro	125	24	41.3	+ 3.1	73	12	18	10	34	2.29	− 1.69	1.40	3.0	10	9	14	7	n.	Jackson Company.
Newton	Rockingham	.....	21	41.0	+ 3.2	75	12	15	10	34	3.12	− 1.05	1.90	2.0	6	8	15	7	sw.	W. C. Gale.
Plymouth	Grafton	500	21	37.8	+ 5.1	68	12	15	10	35	2.49	− 1.43	1.49	3.0	8	12	2	16	w.	Mrs. H. G. Trow
West Ossipee	Carroll	.....	1																	Camp Ossipee.
Vermont.																				
Bloomfield	Essex	.....	2	36.5	.....	66	12	9	30	37	1.79	.....	0.58	3.5	14	12	9	9	s.	Lyman Falls Co.
Cavendish	Windsor	910	6	38.5	.....	75	12	12	30	35	2.07	.....	0.84	5.5	6	13	3	13	.....	Miss M. A. Kingsbury.
Chelsea	Orange	1,640	14																	W. F. Dewey.
Jacksonville	Windham	1,000	24	39.8	+ 5.9	69	11†	13	29	52	2.39	− 2.39	1.33	7.0	6	14	12	4	nw.	Miss Martha French.
Manchester	Bennington	980	10	39.2	.....	65	1†	18	19†	29	1.41	.....	0.35	3.0	4	8	10	12	sw.	N. M. Canfield.
St. Johnsbury	Caledonia	711	16	37.8	+ 4.5	62	12†	13	30	33	1.97	− 1.99	0.80	4.5	11	7	7	16	w.	Fairbanks Museum.
Woodstock	Windsor	700	17	37.7	+ 4.0	67	12	14	29	36	2.15	− 1.36	1.51	6.0	6	9	5	16	.....	John S. Eaton.
Massachusetts.																				
Amherst	Hampshire	222	20	42.0	+ 3.7	72	12	18	10	39	1.06	− 2.79	0.44	2.5	8	11	9	10	sw.	Agricultural Exp. Stat'n.
Blue Hill	Norfolk	640	25	43.2	+ 3.5	74	12	20	19	26	3.82	− 0.80	1.40	3.1	9	7	9	14	sw.	Blue Hill Observatory.
Boston	Suffolk	125	39	46.4	+ 5.2	76	12	27	30	31	4.11	+ 0.01	2.83	T.	9	6	8	16	sw.	U. S. Weather Bureau.
Chestnut Hill	Suffolk	124	29	45.3	+ 4.0	74	12	22	19	30	4.89	+ 0.31	3.05	T.	11	14	4	12	.....	Metrop. Water Board.
Clinton	Worcester	370	13	42.3	.....	75	12	17	30	31	2.41	.....	1.52	3.5	11	11	5	14	.....	Metrop. Water Board.
Concord	Middlesex	139	19	41.4	+ 3.1	76	12	16	10	39	3.06	− 0.88	1.29	2.5	10	9	7	14	n.	F. A. Tower.
Fall River	Bristol	200	43	45.4	+ 2.5	72	12	25	30	30	3.47	− 1.29	1.23	.....	8	9	12	9	sw.	C. V. S. Remington.
Fitchburg	Worcester	550	26	43.0	+ 4.6	74	12	20	10†	30	1.82	− 2.57	0.72	3.5	7	14	4	12	w.	Dr. A. P. Mason.
Framingham	Middlesex	160	29	44.2	+ 3.5	75	12	18	19	35	3.24	− 1.01	.....	2.0	9	.....	.....	.....	.....	Metrop. Water Board.
Hyannis	Barnstable	31	18	45.4	+ 0.5	70	12	27	19	25	6.76	+ 1.73	3.51	.....	10	13	12	5	sw.	C. F. Sleeper.
Lawrence	Essex	51	25	42.9	+ 3.0	76	12	20	10†	36	3.46	− 0.74	1.99	3.0	10	10	12	8	sw.	Essex Company.
Lowell	Middlesex	100	24	44.0	+ 4.5	75	12	19	10	34	2.65	− 1.36	1.77	.....	8	.....	.....	.....	.....	Prop's. Locks and Canals.
Middleboro	Plymouth	53	23	43.2	+ 2.9	75	12	17	10	43	3.33	− 1.25	1.72	.....	10	5	10	15	sw.	A. R. Gurney.
Monson	Hampden	420	25																	Dr. G. E. Fuller.
Nantucket	Nantucket	15	23	47.2	+ 2.0	66	12	31	19	17	6.39	+ 3.11	2.88	T.	9	5	9	16	ne.	U. S. Weather Bureau.
New Bedford	Bristol	88	97	47.4	.....	70	12	24	30	22	.....	.....	.....	.....	.....	11	7	12	sw.	City Engineer.
Norfolk	Norfolk	244	6	43.9°	.....	76°	12	12°	27	38°	2.07°	.....	0.79°	T.°	6°	12[b]	11[b]	5[b]	sw.	Miss Ruby H. Martyn.
Northampton	Hampshire	205	1	44.4	.....	72	3	21	7	35	2.32	.....	1.78	3.0	6	11	7	12	nw.	D. E. Hoxie.
Plymouth	Plymouth	.....	24	45.2	.....	67	13	21	19	23	6.80	.....	4.36	0.0	8	9	10	11	n.	Miss L. B. Knapp.
Provincetown	Barnstable	40	22	46.4	+ 2.5	65	12	27	19	22	5.51	+ 1.91	2.71	0.0	7	16	....	14	sw.	Gideon Bowley.
Rockport	Essex	25	7	45.1	.....	72	12	22	19	25	4.41	.....	2.40	0.0	9	9	8	13	nw.	C. F. P. Bearse.
Rutland	Worcester	1,160	7	40.6	.....	71	12	16	30	33	2.16	.....	0.96	2.6	8	12	8	10	sw.	State Sanatorium.
South Egremont	Berkshire	764	7	38.8	.....	66	12	14	10†	36	2.39	.....	1.26	9.5	10	.....	.....	.....	nw.	Roscoe C. Taft.
Turners Falls	Franklin	200	18	42.2	+ 5.0	64	12	20	10	28	2.89	− 0.17	1.52	2.2	6	.....	.....	.....	.....	Turners Falls Co.
Westboro	Worcester	298	35	44.8	+ 5.0	74	12	19	30	30	2.91	− 1.23	1.00	3.0	7	.....	.....	.....	.....	G. S. Newcomb.
Williamstown	Berkshire	711	28	41.0	+ 3.4	67	12	19	30	31	1.49	− 2.04	0.49	5.5	9	12	7	11	w.	Williams College.
Worcester	Worcester	518	17	43.4	+ 2.8	73	12	21	19	28	1.49	− 3.89	40	3.2	9	11	8	11	sw.	G. W. Swan.
Rhode Island.																				
Block Island	Newport	26	29	47.0	+ 1.7	64	12	29	30	18	3.15	− 0.73	1.04	T.	10	9	7	14	sw.	U. S. Weather Bureau.
Bristol	Bristol	53	23	45.6	+ 1.8	57	12	26	30	20	3.46	− 0.51	1.60	0.0	8	13	10	7	sw.	N. G. Herreshoff.
Kingston	Washington	250	20	43.8	+ 2.7	76	12	20	19	34	3.97	− 1.11	0.82	T.	8	9	14	7	w.	Nathaniel Helme.
Narragansett Pier	Newport	22	27	41.4	− 1.7	76	12	16	10	40	4.36	0.00	1.35	T.	10	13	6	11	sw.	U. S. Weather Bureau.
Providence	Providence	182	5	45.2	.....	75	12	24	19	29	2.95	.....	1.66	T.	8	8	11	11	n.	Do.
Connecticut.																				
Bridgeport	Fairfield	20	16	45.7	.....	77	12	26	6†	37	1.94	.....	0.67	0.7	9	12	10	8	nw.	Wm. Jennings.
Canton	Hartford	900	48	42.2	+ 3.3	70	12	17	10	35	2.18	− 2.43	0.98	3.5	7	13	4	13	nw.	G. J. Case.
Colchester	New London	370	23	43.4	+ 3.3	73	12	19	10	36	2.07	− 2.79	1.45	0.5	9	11	6	13	e.	S. P. Willard.
Cream Hill	Litchfield	1,300	13	41.2	+ 4.5	73	12	18	19	32	2.41	− 0.99	0.76	9.5	12	11	7	12	sw.	C. L. Gold.
Danielson	Windham	300	7	41.9	.....	72	12	18	10	39	2.08	.....	0.90	2.0	6	11	7	12	s.	F. E. Bitgood.
Hartford	Hartford	159	5	44.8	.....	74	12	25	10	31	2.01	.....	0.96	6.4	9	4	13	13	n.	U. S. Weather Bureau.
Hawleyville	Fairfield	600	11	44.8	+ 5.2	72	12	21	19	34	2.10	− 1.03	0.60	3.5	8	14	5	11	w.	E. N. Hawley.
New Haven	New Haven	107	122	46.2	+ 4.9	73	12	26	19	28	1.51	− 2.07	0.57	0.1	6	8	11	11	n.	U. S. Weather Bureau.
New London	New London	47	39	47.4	+ 5.2	74	12	24	19	30	3.29	− 0.81	1.31	T.	9	10	9	11	sw.	T. C. Dillon.
North Grosvenordale	Windham	409	19	42.2	+ 2.8	76	12	15	30	43	1.73	− 3.29	0.62	T.	8	13	5	12	sw.	Grosvenor Dale Co.
Norwalk	Fairfield	116	19	43.5	+ 3.2	74	13	21	19	37	1.76	− 2.82	1.00	1.0	6	12	12	6	sw.	Geo. C. Comstock.
Southington	Hartford	140	40	44.6	+ 6.2	74	12	19	10	33	2.95	− 0.93	1.15	4.5	8	4	20	6	n.	Luman Andrews.
Storrs	Tolland	640	21																	Agricultural Exp. Stat'n.
Torrington	Litchfield	625	8	43.2	.....	73	13	18	10	34	2.90	.....	1.00	3.2	8	14	3	13	s.	E. H. Forbes, Ph. D.
Voluntown	New London	260	24	44.2	+ 2.9	78	12	14	10	46	2.61	− 2.37	0.65	T.	9	7	11	12	nw.	Rev. E. Dewhurst.
Waterbury	New Haven	400	34	45.2	+ 4.6	76	12	20	10	37	1.89	− 2.50	0.78	2.0	9	.....	.....	.....	.....	N. J. Welton.
New York.																				
Addison	Steuben	1,000	19	46.4	+ 7.6	78	1	23	7†	45	1.07	− 0.87	0.36	4.5	8	14	3	13	sw.	H. R. Ainsworth.
Albany	Albany	97	88	42.6	+ 4.2	68	12	22	30	30	1.04	− 1.76	0.66	0.4	7	9	10	11	s.	U. S. Weather Bureau.
Amsterdam	Montgomery	277	5	40.0	.....	64	1†	14	30	34	2.48	.....	1.35	5.0	6	19	1	10	e.	Emery Ellwood
Athens	Greene	90	7	43.4	.....	70	12	22	28	34	1.74	.....	0.76	1.0	7	10	10	10	sw.	E. C. Brooks.
Ballston Lake	Saratoga	400	5	39.4	.....	70	12	13	30	38	2.17	.....	1.26	4.9	9	12	3	15	s.	Geo. R. Schauber.

TABLE 1.—*Climatological data for November, 1909. District No. 1*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
New York—Cont'd.																				
Bedford	Westchester	450	11	46.8	+ 5.7	75	12	24	28	38	2.38	− 1.28	0.80	1.5	8	19	6	5	.....	Dr. L. Rosenburg.
Binghamton	Broome	875	18	43.0	+ 5.4	76	1	19	25	40	0.58	− 1.69	0.26	3.2	9	11	3	16	nw.	U. S. Weather Bureau.
Bouckville	Madison	1,350	12	39.6	+ 5.7	69	1	15	25	34	1.82	− 1.13	0.50	7.0	14	7	4	19	nw.	L. W. Griswold.
Boyds Corners	Putnam	560	27	.....	.....	.....	.....	.....	.....	.....	2.83	− 1.21	.....	.....	.....	.....	.....	.....	.....	Thomas Manning.
Carmel	Putnam	500	17	42.2	+ 2.0	72	12	20	28	33	2.84	− 0.67	1.65	2.0	8	12	1	17	nw.	Thomas Manning.
Chatham	Columbia	470	8	42.0	.....	71	12	22	7†	31	1.23	.....	0.60	3.0	7	12	9	9	n.	Morton R. Tank.
Cooperstown	Otsego	1,250	55	39.8	+ 4.8	68	1	17	30	31	1.90	− 1.14	0.86	3.0	10	9	6	15	s.	G. Pomeroy Keese.
Corinth	Saratoga	542	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. M. Hollister.
Cortland	Cortland	1 129	47	39.9	+ 3.7	73	1†	15	24	35	1.54	− 1.60	0.40	2.0	14	12	7	11	sw.	F. G. Baker.
Cutchogue	Suffolk	32	32	46.2	+ 3.1	69	12	25	19	29	2.70	+ 0.01	1.20	T.	8	11	16	3	ne.	Wm. A. Fleet.
De Ruyter	Madison	1,300	6	41.4	.....	73	1	14	27	34	1.62	.....	0.30	5.4	15	9	5	16	s.	B. D. Crandall.
Easton	Washington	.....	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. Taber.
Elmira	Chemung	863	27	45.9	+ 6.4	80	1	21	24	49	0.84	− 1.14	0.21	2.1	7	5	15	10	n.	Gerity Bros.
Fort Hunter	Montgomery	280	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. E. Wing.
Fort Plain	Montgomery	316	5	42.2	.....	69	13	20	28	32	1.98	.....	0.79	3.2	11	14	8	8	w.	Abram Devendorf.
Glens Falls	Warren	340	15	40.5	+ 4.6	69	12	16	18	37	1.75	− 1.42	0.85	3.0	10	8	5	17	nw.	Prof. C. L. Williams.
Gloversville	Fulton	850	17	38.5	+ 3.8	68	12	14	30	36	2.65	− 0.64	1.22	7.5	11	10	10	10	w.	W. L. McLean.
Greenfield Center	Saratoga	314	11	39.5	+ 3.9	67	12	19	27	30	2.40	− 0.06	1.60	6.0	6	11	8	11	w.	S. E. Darrow.
Greenwich	Washington	425	12	40.9	+ 5.3	69	1†	20	10†	37	1.45	− 1.11	0.55	3.5	9	10	10	10	w.	I. V. H. Gill.
Griffin Corners	Delaware	2,260	9	39.8	.....	73	1	15	7	46	1.44	.....	0.71	3.5	8	14	7	9	w.	Sylvenus Kelly.
Hancock	Delaware	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Daniel B. Van Eaten.
Haskinville	Steuben	.....	9	.....	.....	.....	.....	.....	.....	.....	1.57	− 0.85	0.53	1.0	8	.....	.....	.....	.....	W. G. Collins.
Hoosick Falls	Rensselaer	410	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Sanford L. Cluett
Indian Lake	Hamilton	1,705	10	35.4	+ 2.8	65	1†	10	7†	39	2.60	− 0.16	1.00	7.0	9	11	3	16	n.	Lester Severie.
Jeffersonville	Sullivan	1,240	6	41.2	.....	78	1	16	19	47	1.66	.....	0.94	1.0	9	13	10	7	w.	Chas. Wilfert, Jr.
Lake Pleasant	Hamilton	.....	.....	40.7	.....	65	15	16	30	38	2.10	.....	0.60	.....	5	.....	.....	.....	.....	Willet Lawrence.
Liberty	Sullivan	2,300	23	39.6	+ 4.6	72	1	15	19	30	1.47	− 1.85	0.44	2.8	11	17	5	8	w.	Dr. H. M. King.
Little Falls	Herkimer	924	11	40.0	+ 5.1	69	12	18	30	35	2.43	− 0.32	1.50	9.0	6	13	9	8	e.	O. J. Demster.
Mohonk Lake	Ulster	1,245	13	43.9	+ 5.3	70	12†	19	30	27	1.52	− 1.24	0.52	3.2	8	15	4	11	sw.	A. K. Smiley.
Morehouseville	Hamilton	1,697	1	37.3	.....	68	1	12	19	36	3.41	.....	0.70	6.0	13	14	3	13	w.	Theodore C. Remonda.
Mount Hope	Westchester	200	12	44.6	+ 3.8	76	12	21	28	40	1.40	− 1.57	0.55	3.0	4	10	11	9	.....	Wm. A. Cornelius.
Newark Valley	Tioga	825	1	.....	.....	.....	.....	.....	.....	.....	1.04	− 1.36	0.30	5.5	6	11	6	13	.....	M. D. Clinton.
New Berlin	Chenango	.....	2	.....	.....	.....	.....	.....	.....	.....	1.40	.....	0.59	6.1	11	12	2	16	s.	Roger Greene.
New Lisbon	Otsego	1,234	19	38.4	+ 4.3	72	1	8	30	40	1.89	− 0.63	0.94	8.0	12	9	3	18	sw.	G. A. Yates.
New York City	New York	314	84	47.7	+ 3.7	74	12	30	25	26	1.58	− 1.86	1.00	1.0	6	11	11	8	nw.	U. S. Weather Bureau.
North Creek	Warren	1,002	1	38.4	.....	70	1	14	10	40	3.17	.....	1.57	4.0	7	10	12	8	nw.	W. G. Kenwell.
Northville	Fulton	742	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. C. Pickard.
Norwich	Chenango	1,015	3	41.2[b]	.....	72[b]	16	18[b]	30	40[b]	1.89	.....	0.72	6.0	8	11	8	11	.....	H. S. Hopkins.
Oneonta	Otsego	1,112	15	41.6	+ 3.4	74	1	16	30	37	1.69	− 0.97	0.84	6.0	10	11	4	15	sw.	H. W. Lee.
Oxford	Chenango	916	44	41.1	+ 5.4	70	1	16	30	35	1.73	− 1.05	0.73	8.5	9	10	8	12	w.	John P. Davis.
Port Jervis	Orange	470	25	43.7	+ 5.2	74	1	19	10	36	2.13	− 0.84	1.22	5.0	10	11	11	8	n.	Prof. John M. Dolph.
Salisbury	Herkimer	1,526	12	39.3	+ 4.8	70	1†	15	24†	34	2.42	− 0.90	0.81	4.0	9	10	13	7	w.	Joseph Ryan.
Salisbury Mills	Orange	314	10	44.4	.....	75	12	18	29	41	2.55	+ 0.14	2.28	8.0	4	19	5	6	w.	H. P. Ramsdell.
Scarsdale	Westchester	200	5	45.8	.....	76	13	24	19	32	0.69	.....	0.23	1.5	4	15	11	4	sw.	C. H. Wilmarth.
Setauket	Suffolk	40	24	46.7	+ 2.6	68	12	30	18†	23	2.12	− 1.73	0.74	T.	9	15	8	7	ne.	Selah B. Strong.
Sherburne	Chenango	.....	2	.....	.....	.....	.....	.....	.....	.....	1.68	.....	0.80	14.0	4	.....	.....	.....	.....	E. B. Collins.
Southampton	Suffolk	36	8	46.4	.....	67	12	25	19	23	2.54	.....	0.80	T.	10	10	13	7	sw.	W. L. Jagger.
Southeast Reservoir	Putnam	310	14	.....	.....	.....	.....	.....	.....	.....	3.54	.....	.....	.....	.....	.....	.....	.....	.....	Thomas Manning.
Spier Falls	Saratoga	400	8	39.0	.....	70	12	14	30	37	0.89	.....	0.45	5.0	4	11	8	11	s.	W. F. Anderson.
Trenton Falls	Oneida	751	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. W. Young.
Tribeshill	Montgomery	268	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. S. Marshall.
Utica	Oneida	537	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. E. Young.
Wading River	Suffolk	112	3	45.8	.....	73	12	22	19	35	2.61	.....	0.87	T.	9	22	2	6	nw.	H. B. Fullerton.
Wappingers Falls	Dutchess	110	19	43.0	+ 3.3	70	12	18	28	30	2.29	− 0.98	1.14	9.0	9	14	12	4	se.	H. C. Townsend.
Warwick	Orange	538	9	.....	.....	.....	.....	.....	.....	.....	2.15	− 0.49	0.70	6.0	7	.....	.....	.....	.....	John W. Sly.
Waverly	Tioga	824	27	43.2	+ 4.9	76	1	17	7	43	0.52	− 1.84	0.14	1.0	9	8	15	7	nw.	Hon. J. F. Shoemaker.
West Berne	Albany	936	12	41.0	+ 5.2	75	12	10	28	43	0.40	− 2.14	.....	4.0	2	9	17	4	w.	W. J. Haverly.
West Point	Orange	167	60	44.4	+ 2.4	70[c]	13	26	25†	25	2.07	− 1.88	0.69	8.0	6	16	4	10	s.	Maj. Chas. M. Gandy.
Windham	Greene	1,520	10	39.4	+ 3.1	72	1	11	30	38	2.37	0.00	1.30	6.0	8	9	20	1	w.	A. R. Mott.
Pennsylvania.																				
Altoona	Blair	1,181	21	43.4[c]	+ 3.8	74[c]	2	19[c]	30	47[c]	0.27	− 1.92	0.13	T.	4	.....	.....	.....	.....	Dr. C. B. Dudley.
Bellefonte	Center	826	8	48.1[a]	.....	77[a]	1	25[a]	30	44[a]	0.50	.....	0.17	.....	7	13	7	10	.....	Fred Kurtz.
Center Hall	Center	1,272	10	44.8	+ 4.7	73	1	18	30	41	0.91	− 1.42	0.27	2.0	6	11	6	13	.....	S. W. Smith.
Clearfield	Clearfield	1,107	1	46.8	.....	80	1	20	29	44	0.98	.....	0.43	1.0	6	19	2	9	w.	Raymond C. Ogden.
Coatesville	Chester	380	21	46.7	+ 4.0	78	1	27	7†	39	1.97	− 1.55	0.58	2.7	8	15	8	7	w.	W. T. Gordon.
Drifton	Luzerne	1,633	11	40.3	.....	70	1	18	25	30	1.90	.....	0.50	6.0	9	14	9	7	e.	Eckley B. Coxe, jr.
Dushore	Sullivan	1,590	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. J. D. Benjamin.
Easton	Northampton	325	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. W. Colliton.
Emporium	Cameron	1,050	22	45.2	+ 5.8	73	1	20	30	41	1.50	− 1.36	0.36	T.	11	6	14	10	w.	T. B. Lloyd.
Ephrata	Lancaster	384	9	45.8	.....	78	1	23	30	40	1.48	.....	0.40	3.4	8	13	4	13	w.	W. L. Frantz.
Everett	Bedford	1,080	11	46.2	+ 6.9	78	20	21	28	52	0.70	− 1.18	0.49	T.	3	8	20	2	nw.	B. L. Steckman.
George School	Bucks	.....	2	45.8	.....	74	1	21	19	37	3.50	.....	1.96	.....	8	16	6	8	sw.	Prof. A. C. Smedley.
Gettysburg	Adams	600	35	47.7	+ 7.3	77	1	24	28	38	0.84	− 2.00	0.50	0.0	5	11	11	8	s.	Col. E. B. Cope.
Gordon	Schuylkill	804	5	44.2	.....	77	1	20	28	46	1.58	.....	0.40	6.0	9	15	3	12	nw.	Capt. J. G. Johnson.
Hamburg	Berks	380	13	46.5	+ 4.4	76	1	20	24	40	1.03	− 1.99	0.45	4.0	5	16	5	9	nw.	W. J. Kalbach.
Hanover	York	600	4	50.5	.....	79	1	28	19	39	0.70	.....	0.29	1.0	5	9	15	6	nw.	Dr A. C. Wentz.
Harrisburg	Dauphin	361	21	48.2	+ 6.5	75	1	29	24	34	0.41	− 1.94	0.16	0.2	5	10	8	12	w.	U. S. Weather Bureau.
Huntingdon	Huntingdon	650	21	47.2	+ 5.8	79	1	21	30	49	0.27	− 2.21	0.13	T.	3	9	9	12	w.	Prof. W. J. Swigart.
Hyndman	Bedford	977	2	47.2	.....	75	1	19	30	49	0.26	.....	0.13	T.	4	11	8	11	sw.	H. C. Mauk.
Kennett Square	Chester	275	19	46.8	+ 3.8	71	1	27	19†	31	1.71	− 1.72	0.50	0.2	6	15	8	7	nw.	C. C. Hadley.
Lawrenceville	Tioga	1,006	11	44.5	+ 6.4	79	1	18	26	54	1.18	− 1.23	0.40	4.0	6	15	3	12	.....	C. P. Darling.
Lebanon	Lebanon	458	22	48.0	+ 6.0	79	1	27	28	42	1.05	− 2.08	0.33	3.4	11	11	9	10	sw.	G. W. Hayes, C. E.
Le Roy	Bradford	1,400	21	43.6	+ 6.2	74	1	18	24	34	1.24	− 1.37	0.30	3.4	14	7	8	15	sw.	G. W. T. Warburton.
Lewisburg	Union	450	38	46.4	+ 6.8	75	1	24	7†	43	0.76	− 1.92	0.40	4.0	7	9	6	15	w.	Prof. W. G. Owens.
Lock Haven	Clinton	560	21	46.4	+ 4.9	74	1	23	30	40	0.66	− 2.08	0.21	T.	6	8	10	12	w.	Prof J. A. Robb.
Marion	Franklin	640	5	47.7	.....	74	1	22	30	39	0.46	.....	0.14	0.0	5	16	7	7	.....	Hon. C. B. Hege.
Mauch Chunk	Carbon	634	20	45.2	+ 4.8	78	1	23	7	43	1.77	− 1.72	0.78	6.2	9	12	6	12	w.	F. C. Wintermute.
Mifflintown	Juniata	445	5	45.9	.....	74	1	21	28	44	0.38	.....	0.15	T.	5	14	5	11	w.	Wellington Smith.
Milford	Pike	455	6	42.4	.....	73	12	18	19	40	1.83	.....	.....	4.0	8	14	9	7	nw.	Mrs. Alla Doughty.
Montrose	Susquehanna	1,658	5	41.4	.....	79	1	16	25	41	1.32	.....	0.22	6.0	10	.....	.....	.....	.....	J. R. Beebe.
Mountain House	Fulton	1,950	.....	47.8	.....	73	1	20	24	33	0.51	.....	0.14	0.0	5	15	9	6	n.	T. F. Sloan.
New Germantown	Perry	873	5	47.5	.....	76	1†	23	28	46	0.40	.....	0.40	0.0	1	.....	.....	.....	.....	Ed. C. Johnston.
Philadelphia(1)	Philadelphia	117	38	50.2	+ 5.3	77	1	32	25	25	3.50	+ 0.44	2.00	T.	7	13	8	9	nw.	U. S. Weather Bureau.
Philadelphia(2)	Philadelphia	120	18	50.1	+ 4.2	78	1	30	25	26	3.23	+ 0.01	1.65	.....	7	11	7	12	nw.	John Comly.
Philadelphia(3)	Philadelphia	90	5	47.0	.....	74	1†	25	6†	36	3.42	.....	1.94	2.0	8	15	7	8	sw.	A. C. Davis.
Pocono Lake	Monroe	1,662	7	40.0[a]	.....	71[a]	1	16[a]	7	45[a]	1.54	.....	0.34	6.0	7	13[a]	2[a]	14[a]	w.	Pocono Lake Ice Co.
Reading	Berks	280	36	48.0	+ 5.6	77	1	26	7†	40	1.58	− 1.48	0.58	3.5	7	.....	.....	.....	.....	Franklin Yager.

TABLE 1.—*Climatological data for November, 1909. District No. 1*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Pennsylvania—Cont'd.																				
Scranton	Lackawanna	805	9	45.2	.....	77	1	23	25	36	1.33	.....	0.53	5.9	9	10	5	15	sw.	U. S. Weather Bureau.
Selinsgrove	Snyder	455	21	45.6	+ 4.0	75	1	20	28	43	1.21	− 1.62	0.80	8.0	8	3	16	11	nw.	J. M. Boyer, C. E.
State College	Center	1,191	21	44.8	+ 5.3	76	13	21	18	36	0.36	− 2.25	0.13	T.	.....	.....	.....	.....	nw.	Prof. Wm. Frear.
Towanda	Bradford	754	14	44.1	+ 5.1	77	1	22	24	42	0.86	− 1.28	0.30	3.1	10	11	4	15	sw.	Hiram E. Bull, C. E.
Wellsboro	Tioga	1,327	32	43.7	+ 6.0	76	1	20	7	47	0.94	− 2.11	0.30	2.0	5	12	11	7	sw.	O. L. White.
West Chester	Chester	455	55	47.4	+ 7.2	74	1	28	19	30	2.50	− 1.32	0.90	2.0	13	16	4	10	s.	J. C. Green, D. D. S.
Wilkes-Barre	Luzerne	575	24	45.0	+ 4.8	77	1	25	24†	38	0.88	− 1.85	0.42	3.5	4	5	11	14	.....	A. W. Betterly.
Williamsport	Lycoming	530	19	46.0	+ 5.7	73	1	26	24†	38	0.59	− 1.69	0.19	1.0	6	14	7	9	nw.	Henry H. Guise.
New Jersey.																				
Asbury Park	Monmouth	22	21	47.6	+ 3.0	74	12	25	19	28	1.84	− 1.31	0.56	2.0	9	16	4	10	w.	B. H. Obert.
Atlantic City	Atlantic	16	36	48.2	+ 2.7	73	12	29	30	26	1.93	− 1.30	1.04	0.0	9	13	6	11	nw.	U. S. Weather Bureau.
Bayonne	Hudson	50	19	46.2	+ 2.5	75	12	28	19	28	1.45	− 1.77	0.55	0.5	9	13	7	10	nw.	J. H. Eadie.
Belvidere	Warren	289	19	44.4	+ 3.7	75	1	21	28	39	2.78	− 0.48	1.33	2.0	8	16	6	8	.....	S. J. Hixson.
Bergen Point	Hudson	37	12	46.8	+ 3.2	75	12	26	19	28	1.77	− 1.38	0.50	1.3	8	13	8	9	nw.	Dr. W. H. Mitchell.
Boonton	Morris	413	19	.....	.....	.....	.....	.....	.....	.....	2.48	− 1.36	1.46	1.5	8	.....	.....	.....	sw.	F. G. McIntosh.
Bridgeton	Cumberland	30	34	48.0	+ 2.1	76	1	26	19	40	2.27	− 0.69	0.72	1.0	8	14	6	10	nw.	H. A. Jorden.
Burlington	Burlington	12	25	.....	.....	.....	.....	.....	.....	.....	3.55	+ 0.30	1.90	2.0	8	.....	.....	.....	nw.	D. S. B. McCoy.
Canton	Salem	24	15	.....	.....	.....	.....	.....	.....	.....	2.07	− 0.54	0.65	2.0	7	17	5	8	.....	J. H. Maskell.
Cape May City	Cape May	17	25	49.2	+ 1.8	67	12	30	30	18	2.06	− 1.16	0.85	T.	9	9	13	8	n.	U. S. Weather Bureau.
Cape May C. H.	Cape May	19	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. T. Garretson.
Charlotteburg	Passaic	719	17	44.2	+ 4.1	72	12	18	10	40	1.30	− 1.81	.....	2.5	8	14	8	8	.....	G. S. Briggs.
Chatham	Morris	234	7	.....	.....	.....	.....	.....	.....	.....	2.43	.....	1.05	2.3	9	.....	.....	.....	nw.	M. A. Butler.
Clayton	Gloucester	126	18	47.6	+ 3.7	80	1	26	6	42	2.45	− 0.65	0.58	2.0	7	14	7	9	sw.	W. T. Farley.
College Farm	Middlesex	100	14	45.4	+ 2.0	73	12	21	19	33	1.89	− 1.44	0.88	2.0	10	14	8	8	w.	G. B. Thrasher.
Culver's Lake	Sussex	848	8	.....	.....	.....	.....	.....	.....	.....	1.84	.....	1.05	5.8	8	13	9	8	w.	B. E. Riker.
Dover	Morris	575	25	43.4	+ 3.2	72	12	22	10	35	2.77	− 0.89	.....	7.5	9	8	13	9	.....	W. C. Harris.
Elizabeth	Union	33	30	47.0	+ 3.6	70	2†	26	30	26	1.73	− 1.67	.....	1.0	8	12	10	8	w.	W. M. Oliver.
Englewood	Bergen	135	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. C. Tucker.
Flemington	Hunterdon	187	21	45.7	+ 3.2	77	12	24	19	38	2.38	− 0.97	0.82	1.5	8	15	6	9	nw.	H. E. Deats.
Freehold	Monmouth	187	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. T. Cooper.
Friesburg	Salem	100	18	47.6	+ 3.3	75	1†	25	19	36	2.20	− 0.95	0.95	2.0	9	15	8	7	w.	H. C. Perry.
Haddonfield	Camden	75	1	47.2	+ 2.8	79	1	26	6†	39	2.80	− 0.55	1.61	5.0	10	11	10	9	nw.	C. F. Richardson.
Hammonton	Atlantic	80	12	.....	.....	.....	.....	.....	.....	.....	3.33	− 0.33	1.61	2.0	7	.....	.....	.....	.....	Orville Bassett.
Hightstown	Mercer	85	18	46.4	+ 2.8	74	12	24	19†	33	3.34	− 0.28	2.10	2.0	7	16	5	9	sw.	Ernst Wenger.
Imlaystown	Monmouth	106	23	46.2	+ 2.0	78	1	23	19	37	2.69	− 0.68	.....	1.4	7	15	6	9	sw.	Dr. F. C. Price
Indian Mills	Burlington	76	9	47.3	.....	80	1	21	19	43	3.45	.....	1.61	T.	10	13	10	7	nw.	James Armstrong.
Jersey City	Hudson	15	4	47.6	.....	74	12	29	19†	27	1.71	.....	0.63	1.1	7	10	12	8	sw.	S. K. Pearson, jr.
Lakewood	Ocean	54	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. R. Major.
Lambertville	Hunterdon	95	23	46.4	+ 3.6	75	12	24	19†	39	3.54	+ 0.27	2.30	2.0	8	14	9	7	nw.	W. R. Bowne.
Layton	Sussex	550	10	42.6	+ 4.6	77	12	17	28	44	2.05	− 0.07	.....	3.0	8	15	5	10	sw.	W. C. Hursh.
Little Falls	Passaic	175	7	.....	.....	.....	.....	.....	.....	.....	2.44	.....	0.86	1.5	10	.....	.....	.....	nw.	F. Fearns.
Long Branch	Monmouth	30	1	48.0	.....	73	12	24	19	29	1.70	.....	0.67	.....	.....	.....	.....	.....	nw.	B. B. Bobbitt.
Mahwah	Bergen	312	7	.....	.....	.....	.....	.....	.....	.....	2.17	.....	0.94	1.5	8	.....	.....	.....	nw.	M. F. Brooks.
Moorestown	Burlington	71	47	47.2	+ 4.4	74	1	25	19	32	3.44	+ 0.01	1.98	T.	9	12	9	9	n.	J. C. Beans.
Newark	Essex	140	65	47.4	+ 4.2	75	12	27	19†	28	1.35	− 2.18	0.38	3.4	8	10	10	10	nw.	Prof. Wm. Wiener.
New Brunswick	Middlesex	61	56	.....	.....	72	12	21	30	32	2.50	− 1.14	.....	2.0	7	14	7	9	w.	W. T. Woerner.
Newton	Sussex	678	30	44.0	+ 4.5	76	12	21	19†	42	2.58	− 0.37	0.74	3.5	9	17	2	11	nw.	B. H. Kienbaum.
Northfield	Atlantic	.....	1	.....	.....	.....	.....	.....	.....	.....	2.07	.....	1.20	0.0	8	.....	.....	.....	.....	W. L. Flick.
Oceanic	Monmouth	16	23	48.3	+ 3.3	76	12	23	19	33	1.62	− 1.85	0.66	3.0	8	13	8	9	nw.	Prof. C. E. Dietz.
Paterson	Passaic	110	39	46.0	+ 2.8	76	12	26	28	32	2.14	− 1.15	0.79	1.3	9	8	16	6	nw.	H. A. Probert.
Phillipsburg	Warren	196	7	45.6	.....	74	12	25	28	36	3.08	.....	1.10	2.2	9	16	6	8	nw.	D. W. Smith.
Plainfield	Union	100	22	45.8	+ 3.8	76	12	22	19	34	2.48	− 1.27	0.75	2.6	10	10	13	7	sw.	John Neagle.
Pleasantville	Atlantic	26	11	.....	.....	.....	.....	.....	.....	.....	2.06	− 0.82	1.08	0.0	9	.....	.....	.....	.....	L. Van Gilder.
Pompton Plains	Morris	195	7	.....	.....	.....	.....	.....	.....	.....	2.93	.....	1.28	3.0	8	.....	.....	.....	n.	M. S. Taylor.
Port Norris	Cumberland	8	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. H. Barraclough.
Rancocas	Burlington	68	46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Spencer Haines.
Rivervale	Bergen	70	18	44.6[c]	+ 3.6	75	12	21	10	41	.....	.....	.....	.....	.....	.....	.....	.....	nw.	G. S. M. Holdrum.
Runyon	Middlesex	18	3	.....	.....	.....	.....	.....	.....	.....	1.32	.....	.....	2.0	7	.....	.....	.....	.....	J. H. Cottrell.
Somerville	Somerset	76	30	45.8	+ 3.4	75	12	22	19	34	2.58	− 0.52	1.50	3.0	7	16	5	9	sw.	P. Hardcastle.
South Orange	Essex	200	40	45.4	+ 3.9	73	12	25	19	27	1.76	− 1.65	.....	1.5	7	17	6	7	w.	Dr. W. J. Chandler
Sussex	Sussex	442	19	44.0	+ 3.0	75	1†	21	10	39	1.97	− 1.15	.....	4.0	8	14	8	8	sw.	Prof. W. H. Seeley.
Trenton	Mercer	60	40	49.2	+ 2.8	72	1†	28	30	30	4.33	+ 0.54	2.15	2.0	7	13	8	9	.....	E. R. Cook.
Tuckerton	Ocean	23	16	47.1	+ 3.1	74	12	20	19	35	1.61	− 1.46	0.55	1.0	9	9	12	9	sw.	F. R. Austin.
Vineland	Cumberland	118	42	47.3	+ 3.4	79	1	25	19	41	2.28	− 1.04	0.78	2.5	7	15	7	8	nw.	Alfred Chalmers.
Woodbine	Cape May	43	18	47.1	+ 2.8	75	1	23	19	32	2.86	+ 0.07	0.90	2.0	8	13	7	10	w.	Prof. R. D. Maltby.
West Virginia.																				
Bayard	Grant	2 500	6	43.6[b]	.....	71[b]	1	15[b]	30	44	1.38[b]	.....	0.38[b]	1.0[b]	7	15[b]	4[b]	9[b]	w.	Solomon Clark.
Burlington	Mineral	875	13	47.8	+ 5.6	77	12†	15	30	50	0.32	− 1.69	0.17	T.	2	14	13	3	w.	J. W. Vandiver.
Franklin	Pendleton	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. A. Martin.
Lost City	Hardy	.....	3	48.8	.....	70	8	22	30	34	0.35	.....	0.10	T.	5	14	6	10	w.	B. D. Hinegardner.
Martinsburg	Berkeley	435	18	47.4	+ 4.8	75	1	26	28†	43	0.78	− 1.53	0.36	0.0	6	18	8	4	nw.	G. W. Van Metre, C. E.
Moorefield	Hardy	900	13	50.5	+ 7.8	79	12	13	30	50	0.23	− 1.59	0.11	T.	3	7	21	2	sw.	John C. Fisher.
Romney	Hampshire	824	13	46.8	+ 4.2	75	22	17	30	45	0.56	− 1.54	0.15	T.	6	15	6	9	w.	Jno. C. Linthicum.
Upper Tract	Pendleton	1,230	11	49.4	+ 5.8	78	1	17	30	46	0.84	− 1.00	0.50	T.	4	10	14	6	w.	J. M. Mallow.
Maryland.																				
Annapolis	Anne Arundel	45	31	50.9	+ 4.2	85	1	31	30	40	2.70	− 0.48	1.35	T.	5	15	5	10	sw.	W. M. Abbott.
Bachman's Valley	Carroll	860	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. M. Myers.
Baltimore	Baltimore	115	39	51.5	+ 5.7	78	2	32	25	31	1.15	− 1.77	0.43	T.	7	10	11	9	s.	U. S. Weather Bureau.
Cambridge	Dorchester	25	11	51.4	+ 3.7	79	1	28	19	35	2.27	− 0.37	0.71	T.	7	19	5	6	nw.	T. E. Keenan.
Cheltenham	Prince Georges	230	9	51.0	.....	78	2	24	19	39	1.37	.....	0.50	4.0	5	17	5	8	nw.	J. E. Burbank.
Chester	Queen Annes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. M. Kelly.
Chestertown	Kent	80	24	49.2	+ 3.8	72	2	29	30	28	2.32	− 0.55	0.78	2.0	8	17	8	5	n.	Hon. M. de K. Smith.
Chewsville	Washington	530	12	48.4	+ 5.5	75	1	20	30	39	0.71	− 1.25	0.26	T.	5	12	17	1	nw.	D. Paul Oswald.
Clear Spring	Washington	650	12	47.8[d]	.....	72	1†	25	29†	35	0.64	.....	0.24	0.7	7	16	13	1	sw.	W. W. Frantz.
Coleman	Kent	80	11	49.6	+ 3.3	75	1	30	28	33	1.74	− 0.92	0.56	2.0	7	16	4	10	sw.	Jas. H. Harris.
College Park	Prince Georges	170	19	49.8	+ 4.7	77	1	23	28†	44	0.78	− 2.33	0.55	.....	3	18	0	12	nw.	Prof. H. J. Patterson.
Cumberland	Allegany	700	35	.....	.....	.....	.....	.....	.....	.....	0.27	− 2.04	0.15	T.	4	.....	.....	.....	.....	J. W. Frantz.
Darlington	Harford	300	17	47.2	+ 3.4	75	1	25	19	35	1.72	− 1.27	0.80	1.5	7	14	8	8	sw.	Prof. A. F. Galbreath
Denton	Caroline	42	14	48.6	.....	76	1	25	28†	38	2.24	.....	0.66	1.0	8	21	2	7	s.	H. B. Mason.
Easton	Talbot	35	18	49.7	+ 3.8	75	1	27	19	36	1.69	− 0.94	0.58	T.	8	18	6	6	nw.	Henry Shreve.
Emmitsburg	Frederick	720	36	49.8	+ 7.1	74	1†	29	28†	33	0.58	− 2.82	0.22	.....	5	18	9	3	sw.	Jno. H. Eckenrode.
Fallston	Harford	450	36	48.6	+ 5.4	74	2†	26	19	36	1.28	− 2.19	0.52	2.0	6	2	22	6	sw.	J. H. Curtiss.
Frederick	Frederick	275	32	49.8	+ 5.7	77	1	24	30	40	0.72	− 1.90	0.33	T.	5	15	10	5	sw.	Henry Trail
Frostburg	Allegany	1,929	8	46.8	.....	72	1†	22	30	34	0.65	.....	0.20	1.0	9	21	4	5	.....	L. B. Abbott.
Great Falls	Montgomery	200	18	49.2	+ 5.2	80	1†	24	19†	45	0.66	− 1.64	0.50	0.5	4	11	18	1	nw.	J. W. Blasett.
Green Spring Furnace	Washington	450	17	49.4[a]	+ 6.9	74	1	24	28	40	0.55	− 1.70	0.25	0.4	3	19	5	6	w.	E. G. Kinsell.
Keedysville	Washington	400	5	49.7	.....	77	1	19	30	42	0.50	.....	0.26	T.	5	19	6	5	s.	J. A. Miller.

TABLE 1.—*Climatological data for November, 1909. District No. 1*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Maryland—Cont'd.																				
Laurel	Prince George	150	15	49.2	+ 4.2	78	2	23	28	43	0.98	− 1.60	0.73	2.0	3	13	12	5	.....	Dr. T. M. Baldwin.
Monrovia	Frederick	630	22	50.6	+ 7.1	77	1	26	19†	33	1.19	− 2.28	0.60	T.	7	17	7	6	s.	J. H. Lawson.
Ocean City	Worcester	10																		J. Alan Massey.
Pocomoke City	Worcester	37	16	52.4	+ 2.4	74	2	30	19	29	1.15	− 1.20	1.02	.....	3	19	5	6	n.	R. M. Stevenson.
Porto Bello	St. Marys	38	4	52.1[b]	.....	79[a]	1	26[b]	30	38	1.20	.....	1.20	T.	1	22	4	4	nw.	Alpheus Hyatt.
Princess Anne	Somerset	17	16	50.0	+ 3.6	76	1	23	19	35	1.69	− 0.57	0.71	T.	5	9	16	5	sw.	Jas. R. Stewart.
Rockville	Montgomrey	421	2	50.6	.....	78	2	27	18	37	0.93	.....	0.60	1.0	3	22	5	3	.....	Dr. Geo. E. Lewis.
Salisbury	Wicomico	23	4																	W. E. Downing.
Sanatorium	Frederick	.....	1	48.6	.....	72	1	27	19	29	0.70	.....	0.23	T.	6	18	0	12	se.	Dr. W. M. Garrison.
Solomons	Calvert	20	18	51.7	+ 3.1	75	2	32	19†	27	1.07	− 1.12	0.45	1.5	5	9	11	10	nw.	Dr. W. H. Marsh.
Sudlersville	Queen Annes	65	10	48.8	+ 2.9	75	1†	27	28†	38	2.87	+ 0.32	0.70	3.0	10	15	8	7	nw.	Jas. E. Higman.
Takoma Park	Montgomery	320	11	49.8	+ 5.1	77	2	26	19	36	0.93	− 1.16	0.52	1.0	5	6	18	6	.....	L. M. Mooers.
Taneytown	Carroll	450	10	47.8[d]	+ 4.3	77[d]	1	22	28	44	0.61	− 2.31	0.28	T.	5	20	2	8	nw.	R. A. Nusbaum.
Towson	Baltimore	475	1	49.6	.....	75	2†	28	19†	38	1.10	.....	0.52	2.7	7	15	4	11	se.	C. W. Treadwell.
Van Bibber	Harford	100	12																	H. A. Wroth.
Westernport	Allegany	1,000	15	48.4	+ 6.4	75	12†	30	30	46	0.21	− 1.60	0.08	T.	4	.....	.....	.....	.....	Prof O. H. Bruce.
Woodstock	Baltimore	392	35	48.4	+ 5.6	78	3	24	28	39	.....	.....	.....	.....	.....	.....	.....	.....	nw.	Rev. A. J. Donlon.
District of Columbia.																				
Washington	District of Columbia	112	39	50.8	+ 5.8	77	2	29	28	37	0.89	− 1.82	0.53	1.5	6	17	7	6	s.	U. S. Weather Bureau.
Delaware.																				
Delaware City	New Castle	10	7	49.3	.....	74	2	29	28	38	1.67	.....	0.42	0.5	6	18	6	6	nw.	H. Morton Price.
Dover	Kent	40	21	49.2	+ 5.9	79	1	27	28†	34	2.81	− 0.59	1.99	2.0	5	15	6	9	w.	Thos. F. Dunn.
Milford	Kent	20	25	50.1	+ 4.6	77	1	27	19	41	2.22	− 0.92	0.67	3.0	10	15	7	8	sw.	C. J. Holamueller.
Millsboro	Sussex	20	17	49.9	+ 3.4	78	1	23	5	39	2.11	− 0.56	1.03	T.	4	19	3	8	sw.	Rev. L. W. Wells.
Seaford	Sussex	40	16	49.4	+ 3.2	76	1	25	19	33	1.81	− 0.83	0.88	0.5	8	20	1	9	sw.	E. B. Brown.
Virginia.																				
Culpeper	Culpeper	450	....	47.0	.....	75	2	22	19	39	0.73	.....	0.56	T.	4	10	15	5	s.	Col. H. C. Burrows.
Dale Enterprise	Rockingham	1,350	30	48.1	+ 4.3	74	12	19	30	45	0.90	− 1.35	0.45	T.	5	14	9	7	s.	Rev. L. J. Heatwole.
Doswell	Hanover	134	8	52.9	.....	80	1†	19	19	42	0.81	.....	0.60	T.	3	19	9	2	s.	R. F. & P. R. R.
Fredericksburg	Spottsylvania	100	20	52.2	+ 5.7	79	2	21	19	41	1.07	− 1.35	0.85	T.	4	18	8	4	nw.	S. G. Howison.
Lincoln	Loudon	500	8	50.0	.....	81	12	20	28	51	0.81	.....	0.46	T.	3	14	9	7	nw.	Dr. George Roberts.
Mt. Weather	Loudon	1,726	5	47.0	.....	70	2	24	24	31	0.97	.....	0.35	2.8	7	13	11	6	nw.	U. S. Weather Bureau.
Nokesville (near)	Fauquier	350	5	51.3	.....	79	1†	25	19	39	0.67	.....	0.42	T.	2	20	4	6	.....	Andrew Low.
Quantico	Prince William	16	12	51.2	+ 6.6	79	2	22	20	46	1.32	.....	1.13	T.	3	27	0	3	nw.	R. F. & P. R. R.
Shenandoah	Page	937	8								1.00	.....	0.59	T.	3	24	2	4	sw.	N. & W. Ry.
Staunton	Augusta	1,380	17	50.0	+ 5.2	75	2	25	30	40	1.15	− 1.09	0.63	T.	3	.....	.....	.....	.....	Western State Hospital.
Stephens City	Frederick	710	17	49.6	+ 5.8	78	2	21	30	40	0.49	− 1.56	0.20	T.	5	22	6	2	w.	B. T. Argenbright.
Warsaw	Richmond	160	17	51.6	+ 5.2	78	1†	22	19	31	1.58	− 1.00	0.95	T.	6	15	10	5	n.	C. H. Constable.
Woodstock	Shenandoah	927	13	50.2	+ 5.6	78	12	19	30	43	0.44	− 1.58	0.30	T.	3	13	12	5	w.	Miss A. G. Miley.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [d], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 1, North Atlantic States.*

Stations.	River basins.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Maine.																																	
Bar Harbor	Coast		.03	.80	.05	T.	T.		.15				T.	T.				1.40	T.		.03		T.	.15	.40	2.75	T.			T.			5.77
Cornish	Saco		.06	.38					.16				T.			.01	T.	.38	T.		.02		.15		.40	.33				.17			2.06
Danforth	Penobscot			.45	.25		T.		.20									.50	.07		T.			.40	T.	2.00				.05			3.92
Debsconeag	do.																																
Eastport	Coast		.09	.80	.02	.02	T.		.15				.02	T.		T.		.66	T.		.07	T.	.01	.25	.61	.89	.03			T.			3.62
Fairfield	Kennebec																																
Farmington	do.		T.	.87	T.	.08			.12	.02				.05				.44	T.	T.	.10		*	.22	*	1.84				.08			3.82
Gardiner	do.	T.		.90	.07	.13			.20									.44	.02		.01			.12	.08	1.60	.20			.11			3.88
Greenville	do.		.05	.78	.22	T.	T.		.25				.14	.01			.06	.22	T.		.08	T.	.18		.69	1.66				.23			4.57
Houlton	St. John		.02						.05									.20							.17	1.60			30				2.34
Lewiston	Androscoggin		T.	.56	.01				.12					.02				.36			.01		.08	.03	.62	.86	.02			.10			2.79
Madison	Kennebec			.90					.24				T.					.55			.08		*	.26	1.42	.62							4.07
Millinocket	Penobscot			.07	1.25	.07	T.		*	.35								.08	.41		.05			.15	.05	1.29	1.15						4.92
North Bridgeton	Saco		.08	.31	.17				.08						.01			.30			.02		.13			.41				.20			2.71
Orono	Penobscot			1.08	.04				.20				.22		.01			.45			.11			.15	*	1.80				.08			4.14
Oquossoc	Androscoggin																																
Patten	Penobscot			1.33	.39	.09	T.		.32					.05				.20	T.		T.			.31		1.41	.09						4.19
Portland	Coast			.69					.21							T.		.31					.06	.01	.44	.90	.09			.12			2.83
Rumford Falls	Androscoggin		.05	.54	.04	T.			.11								.02	.27			.05		.12	.01	1.00	.68				.42			3.31
The Forks	Kennebec			.90					.25					.32				.32								2.30			.25				4.34
Van Buren	St. John																																
Winslow	Kennebec	*	*	1.06	.14			.25							.28			.48			.07		.08	.02	*	1.97							4.35
New Hampshire.																																	
Alstead Center	Connecticut		.03	.05					.02	.01								.34	T.				.03	.01	.67	.26	.18						1.69
Benton	do.			.11	.03	T.	T.			.25							T.	.17	T.		T.		T.			1.00				T.			1.56
Bethlehem	do.		T.	.10	.05	.03	T.		.33									.10	T.		.10		.02	.12	.10	.89	.50			.13			2.47
Brookline	Merrimac		.12	.18					T.									.20					.06	.03	1.04	.25				.12			2.00
Concord	do.		.02	.20	T.	T.			.05					T.			T.	.24	T.				.08	T.	.54	.74				.25			2.12
Durham	do.			.69				.06										.18					.06			1.28				.20			2.47
Franklin	do.		.05	.12					.13	.02								.43	T.				.09	.06	.45	.95	.11			.24			2.65
Grafton	do.			.10	T.				.10								T.	.10	T.				.10	.05	*	1.45	.30						2.20
Hanover	Connecticut		.02	T.		.01			.13				T.	T.		T.	.04	.23	.02		T.		.11	.01	.50	.70	.20			.08			2.05
Keene	do.		.01	.12		T.			.02				T.			T.		.28	T.				.02	.01	.55	.39	.09			.11			1.60
Nashua	Merrimac	T.	.04	.29					.01								T.	.13					.02	.03	.95	.68	.02			.12			2.29
Newton	Merrimac		T.	.86	T.				.04					T.			T.	.16	T.				T.	T.	.25	1.65				.16			3.12
Plymouth	do.		T.	.10	T.	T.	T.		.14								T.	.39	T.	T.	T.		.07	.07	T.	1.49	.12			.11			2.49
West Ossipee	Saco																																
Vermont.																																	
Bloomfield	Connecticut			.15	.07	.05			.23	.02				.05		.01		.15	.05		.08		.13	.12		.58	.10						1.79
Cavendish	do.		T.		.11	T.			.10									.42	T.	T.		T.		.10	.50		.84						2.07
Chelsea	do.																																
Jacksonville	do.		.01														.30						.30	.05	.40	1.33							2.39
Manchester	Hudson		T.		T.	T.			.26									.28	T.					T.	.35	.52							1.41
St. Johnsbury	Connecticut	T.		.12	.06	.25	T.		.18	T.								.17	T.		.05		.08	.10	T.	.80	.06			.10			1.97
Woodstock	do.								.12									.34		T.			.12		*	1.51			.06				2.15
Massachusetts.																																	
Amherst	Connecticut		.15	.02		T.			.01						T.	T.	T.	.44		T.			T.	.02	.06	.18				.18			1.06
Ashland	Merrimac	.01	*	.70	.01				.02									.12					.01	*	*	2.24	.05			.22			3.38
Bakers Bridge	do.			.94	.06																				.50	1.10				.35			2.95
Bedford	do.			.82	.08													.10						.06	.68	.88	.14			.17			2.93
Blue Hill	Coast		.10	.30	T.				.02					T.			T.	.26					T.	.11	1.28	1.40	.14			.21			3.82
Boston	do.		.04	.42	T.				.02					T.			T.	.07	T.				T.	.18	2.11	1.05	.04		.18				4.11
Chestnut Hill	do.		.10	.59					.05									.14					.05	.25	3.05	.35	.04		.20	.07			4.89
Clinton	Merrimac		.02	.30	.04				.04									.15					.06	.02	*	*	1.52			.26			2.41
Concord	do.		T.	.87	.04				.01								T.	.11	T.	T.			.02	.04	.71	.92	.16			.18			3.06
Fall River	Coast		.10	.55														.45						.65	1.23	.32	.05			.12			3.47
Fitchburg	Merrimac		.04	.16					T.									.26					.04	T.	.40	.72	T.			.20			1.82
Framingham	do.			.59	.02				.02									.09					.03		*	*	2.27			.22			3.24
Haverhill	do.		.01	.77	T.				.04									.11					T.	.01	1.14	1.51	.14			.16			3.89
Hingham	Coast		*	.36	T.				.05									.08					T.	T.	*	4.63	.23			.16			5.51
Hyannis	do.		*	1.35	.03													.63					.01	.93	*	3.51	.10			.20			6.76
Jefferson	Merrimac			.27														.33					*	*	*	*	1.10			.19			1.89
Lake Cochituate	do.		*	.68					.03									.09					.02	*	*	*	2.67			.27			3.70
Lawrence	do.		T.	.94	T.				.05									.09					.02	.05	*	1.99	.16			.16			3.46
Leominster	do.		.03	.21					T.								T.	.20					.01	.01	.75	.62	T.			.18			2.01
Lowell	do.			.57					.04									.10						*	*	*	1.77			.17			2.65
Middleboro	Coast		.04	.55			.03		.05									.38					T.	.29	1.72	.06	.11			.10			3.33
Monson	Connecticut																																
Nantucket	Coast		.04	1.79	T.	T.			.04	T.								.78		T.			T.	.75	2.85	.03	.02			.09			6.39
New Bedford	do.																																
Norfolk	do.		T.	.44						T.								.26							.79	.39	.11			.08			2.07
Northampton	Connecticut		.17													T.			.05			T.	T.	.08	.08	1.78		.16					2.32
Plymouth	Coast		1.00							.15								.40					T.	*	4.36	.58	.13			.18			6.80
Princeton	Merrimac				.27													.29						*	*	*	.77			.26			1.59
Provincetown	Coast		*	1.13														.53						.74		2.71	.24			.16			5.51
Rockport	Coast			.03	.15				.08									.10						.10	.95	2.40	.30			.30			4.41
Rutland	Connecticut	T.	*	.22					.03					T.	T.			.26						.20	.96	.25				.24			2.16
Salem	Coast																																
Somerset	Coast		*	.68					T.									.49						*	*	2.33	.06			.09			3.65
Spot Pond	Coast	.02	*	*	.46				.03									.09					.02	*	*	*	3.50			.19			4.31
South Egremont	Housatonic		.35	.02					.05								.25	.08					.02	.17	1.26	.02			.17				2.39
Sterling	Merrimac			*	.23													.20							*	*	.61			.19			1.23
Taunton	Coast		T.	.54	T.		T.			T.								.50			T.	T.	T.	*	*	*	2.95			.13			4.12
Turners Falls	Connecticut			.30		T.				.09								.35			T.				T.	1.52	.37			.26			2.89
Westboro	Merrimac		*	.77					T.									.13	T.				.05	T.		*	1.85			.11			2.91
Williamstown	Hudson			.01	.02				.04								T.	.30					.04	.11	.24	.49	.24						1.49
Winchendon	Connecticut		.11	.04					.05								.30						.07	.04	.76	.48	.08			.30			2.23
Worcester	Coast		.09	.22		T.			.02								T.	.19		T.			.09	.10	.40	.26	T.			.12			1.49
Rhode Island.																																	
Block Island	Coast		.08	.85	.03				.06							T.		.38		T.				.61	1.03	.05	.01			.05			3.15
Bristol	do.			.67	.03													.36					T.	.29	*	1.86	.12			.13			3.46
Kingston	do.		22	.82					.05									.60		T.				.77	.70	.76				.05			3.97
Narragansett Pier	do.		.37	.52					.12							T.		.69		.01			T.	1.10	1.05	.34	.04			.12			4.36
Pawtucket	do.		*	.49					.02									.25		T.				*	*	*	3.07			.17			4.00
Providence	do.		.10	.32		T.			T.									.25					T.	.34	1.33	.46	.03			.12			2.95
Connecticut.																																	
Bridgeport	Coast		.02		T.				.02	.02							T.	.15		T.			.01	.39	.67	.38				.28			1.94
Canton	Connecticut		.28						.03								T.	.23		T.			T.	.22	.98	.21				.23			2.18
Colchester	Coast		.05						.10									.32		.05			.05	*	*	1.45	.05						2.07
Cream Hill	Housatonic		.20	.15					.02	.01							.02	.34		.08		T.	.02	.12	.48	.76				.21			2.41
Danielson	Coast		*	.48						.02								.50						.90						.18			2.08
Falls Village	Housatonic		.32															.26		.04		.03	.04	.07	.20	1.40				.12			2.48
Farmington	Connecticut		.18	T.					.06								T.	.21	T.	T.			T.	*	*	1.92				.08			2.45
Hartford	Connecticut		.18	T.	T.	T.			.01	.01						T.	T.	.27		T.			.03	.23	.75	.41				.15			2.01

TABLE 2.—*Daily precipitation for November, 1909. District No. 1*—Continued.

Stations.	River basins.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Connecticut—Cont'd.																																	
Hawleyville	Housatonic			.35						.06								.31		.05				.15		.40	.60			.18			2.10
Lake Konomoc	Coast		.20	.19															.41					.09	.45	1.04						2.38
New Haven	do		T.		T.				.13								T.	.15		T.			T.	.29	.52	.28			.14			1.51
New London	do		.08	.27	.04				.11									.50		T.			T.	.12	.65	1.31			.21			3.29
North Grosvenordale	do		.02	.11					.05									.37						.03	.62	.43			.10			1.73
Norwalk	do								.04									.13		T.				*	*	1.44			.15			1.76
Southington	do			.10						.05								.30		T.			.05	.25	.80	1.15	T.		.25			2.95
South Manchester	Connecticut				.07					.01						.15								*	*	1.41			.15			1.79
Storrs	Coast																																
Torrington	Housatonic			1.00														.18	.16			T.		.15	.11	.82	.26			.22			2.90
Voluntown	Coast		.33	.25	.08					T.								.40						.12	.65	.53	.10			.15			2.61
Wallingford	do			.23					.03							T.	.12	.17		T.			T.	.25	1.28	.19		.12					2.39
Waterbury	Housatonic		.07		T.				.05					T.			T.	.30	T.	.01			.01	*	.20	1.02			.23			1.89
West Simsbury	Connecticut		.20						.03									.17					*	.09	*	1.29			.21			1.99
New York.																																	
Addison	Susquehanna		.01	T.	.21				.15							T.	T.	T.	.08	T.		T.	.18	.04		.36	T.		.04			1.07
Albany	Hudson		T.	.01	T.		T.		.04							T.	T.	.04		T.		T.	T.	.09	.44	.28			.14			1.04
Amsterdam	Mohawk		.25				T.		.23											T.				.35	*	1.35						2.48
Athens	Hudson		.32		T.	T.	T.		T.						T.	T.	T.	.16	T.	T.			T.	.04	.22	.76	.06		.18			1.74
Ballston Lake	Hudson		.18	T.		T.			.07	T.						T.		.15	T.	T.			.03	.06	.20	1.26	.01		.21			2.17
Bedford	Coast			.48						.12								.25		.05			.02	.16	.50	.80						2.38
Binghamton	Susquehanna		T.		.04				.08				T.	T.			T.	.01	T.	.01		.04	.01	.12	.18	.09	T.					0.58
Bouckville	Susquehanna			.03	.10	.03			.16							.09	.04	.13	.20			.05	.14	.19		.50	.06			.10			1.82
Boyd's Corners	Hudson																																2.83
Carmel	do		.38						.09									.10	.33	T.				.16	*	1.65			.13			2.84
Chatham	do		T.	.18					.03								T.	.09		T.			T.	.15	.60	.06			.12			1.23
Cooperstown	Susquehanna			.04	.05				.12									.08	.08			.15	.20		.86	.02			.30			1.90
Corinth	Hudson																																
Cortland	Susquehanna			.01	.11	.05			.18	.02						.01	.01	.25	.10	.06			.21			.40	.07			.06			1.54
Cutchogue	Coast		.05	.13	.03				T.									.39	T.					.09	1.20	.71			.10			2.70
De Ruyter	Susquehanna	*	.02		.13	.26		*	.16	.02					.05	.03	.12	.17	T.			.10	.03	.13	*	.30	.07		*	.03			1.62
Easton	Hudson																																
Elmira	Susquehanna			.05	.07				.19												.19				.21			.10	.03				0.84
Fort Hunter	Mohawk																																
Fort Plain	do		.02		.02		.01		.32							T.	.02	.14	T.	T.		.02	.12	.14	.02	.79	T.			.36			1.98
Glens Falls	Hudson		T.		.03		T.		.10						*	.03	*	.22		T.			.18	.07	.04	.85	.03		*	.20			1.75
Gloversville	Mohawk		.07		.08	T.			.20	.02							T.	.26	T.	.06		T.	.06	.10	.28	1.22	T.			.30			2.65
Greenfield Center	Hudson		.15						.15									.30					.10	.10		1.60							2.40
Greenwich	do		.03						.10	.01								.22					.02	.07	.30	.55	.15						1.45
Griffin Corners	Delaware		.10		*	.04			.08								*	.12	*	.05			*	.14	.20	.71							1.44
Hancock	do																																
Haskinville	Susquehanna				.53	.05			.14								.10	.15				*	.45			.10				.05			1.57
Hoosick Falls	Hudson																																
Indian Lake	do		.20	.10					.10	.05							*	.40					.40		.20	1.00			.15			2.60
Jeffersonville	Delaware		.04		.08	T.			.10							T.	T.	.27	T.	.04		T.	.06	.05	T.	.94	T.			.08			1.66
Lake Pleasant	Hudson		T.						.15								.60						.60			.45				.30			2.10
Liberty	Delaware		.09	.05	.03				.11		.03							.35	T.	.02		.44		.10	.20	.05			T.				1.47
Little Falls	Mohawk		T.		.08				.33								T.	T.	T.	T.	.30		T.	.15		.07	1.50						2.43
Mohonk Lake	Hudson		.15	.11													.25	.05	T.					.12	*	.52	.19		.13				1.52
Morehouseville	Mohawk		.20	.08	.10	.08			.34									.60	.05	.20		.30	.40	.28		.70				.08			3.41
Mount Hope	Coast																			.15			T.	T.	.55	.45				.25			1.40
Newark Valley	Susquehanna		.04		.13				.10					T.		T.	T.	T.	T.	.05		T.	.25	.17	T.	.30	T.		T.				1.04
New Berlin	do		T.	T.	.03	.04			T.	.09							*	.05	.01	.01	T.		.11	.26	*	.59	.18		*	.03			1.40
New Lisbon	do				.04	.05			.10							.02		.07	.03				.16	.20	.10	.94	.10			.08			1.89
New York City	Coast		.03		T.				T.									.08	T.	T.			T.	.31	.63	.41				.12			1.58
North Creek	Hudson			.10		.57			.15							*	.26						.35			1.57				.17			3.17
Northville	do																																
Norwich	Susquehanna			T.	.02												T.	.01	.03	.05			.26	.10		.70	.72						1.89
Oneonta	do	.19							.06									.04		.03		.06	.05	.15	.15	.84	T.			.12			1.69
Oxford	do		.07	T.	.07				.18	T.		T.			T.		T.	T.	.10			T.	.17	.30	T.	.73	.65			.06			1.73
Port Jervis	Delaware			.04	.09				.16									.07		.02					.16	.29	1.22	.02		.06			2.13
Salisbury	Mohawk				.18				.40									.41	.04	.08		.17	.15	.18		.81							2.42
Salisbury Mills	Hudson								.05										.05						2.28					.17			2.55
Scarsdale	Coast		T.	.24					T.	T.								.20	T.					T.	.15	.10							0.69
Setauket	do		.10	.13	.04	T.			T.	.02						T.	T.	.14		T.			T.	.37	.74	.48			.10			2.12
Sherbourne	Susquehanna																						.08	.20		.60	.80						1.68
Southampton	Coast		.11	.28	.01					.14						T.		.32	T.				T.	.05	.80	.68	.05			.10			2.54
Southeast Reservoir	Hudson																																3.54
Spier Falls	Hudson																	.02					.25		.45					.17			0.89
Trenton Falls	Mohawk																																
Tribeshill	do																																
Utica	do																																
Wading River	Coast		.21	.04					*	.13								T.		T.				.28	.87	.56	.40			.12			2.61
Wappingers Falls	Hudson		.16	.12					.12		T.						T.	.21	T.	T.			.08	.24	.12	1.14	.10						2.29
Warwick	do	.37							.08									.15						.25	.70	.50				.10			2.15
Waverly	Susquehanna		.03		.08	.02			.10	.02						T.	.02	T.	T.	T.			.14			.10	T.			.01			0.52
West Berne	Mohawk								T.														T.		*	.40							0.40
West Point	Hudson		*	.69														*	.13					.18	*	.68	.34			.05			2.07
Windham	Mohawk					.11			.08									T.	.14				.12		.37	1.30	.07			.18			2.37
Pennsylvania.																																	
Altoona	Susquehanna		.01		T.				.13	T.						T.	.11	.02							T.								0.27
Ansonia	do			.10	.05	.13			.02	.17							T.	.08		T.			.17	T.			.15						0.87
Bellefonte	do		.06		.07				.07								.15	.02					.03	.10									0.50
Browers Lock	Schuylkill		.27		.05				.14	.06														.58	.48	.20							1.78
Center Hall	Susquehanna		.08						.27	.03							.10							.18		.25							0.91
Clearfield	do		.06						.13								.43		.06	.01		.29											0.98
Coatesville	Coast		.41		.08				.30								.02	.11						.47	.52	.06							1.97
Doylestown	Schuylkill		T.	.59					T.	.24							.15						1.00	.66	.69								3.33
Drifton	Susquehanna		.05		.35			.20										.20	T.	.05	.05	T.		.50	.36	.20							1.90
Dushore	do																																
Easton	Delaware																																
Emporium	Susquehana	.01	.10	.02	.05				.36							.15	.10	.08	T.	T.		.20	.33	.10			T.							1.50
Ephrata	Susquehanna		.15		.02				.01	.25						T.		.27						.40	.24	.14							1.48
Everett	Juniata						.49		.07								T.	.14	T.					T.	T.								0.70
Forks of Neshaminy	Delaware		.02	.25	.07				.17	.06								.10						.45		2.09				.03			3.24
George School	do		.03	.40	.06					.20								.18						.42	.25	1.96							3.50
Gettysburg	Potomac		.09						.10	.05								.10					T.	.50									0.84
Girardville	Susquehanna		.07	T.	.05				.15								T.	.24		.08		T.	T.	.28	.44	.33							1.64
Gordon	do		.12		.22	.04				.16							T.	.26		.06			.02	.30		.40							1.58
Hamburg	Schuylkill								.29													.19	.10		.35	.10							1.03
Hanover	Susquehanna		.06		T.				.14									.13						.29		.08							0.70
Harrisburg	do		.06	T.	T.				.16							T.		.05	T.				T.	.13	T.	.01							0.41
Huntingdon	Juniata		.13						.10								.04						T.		T.								0.27
Hyndman	Potomac	T.		T.			.02		.10	T.	.01	T.					T.	.13	T.						T.								0 26

TABLE 2.—*Daily precipitation for November, 1909. District No. 1*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Pennsylvania—Cont'd.																																	
Kennett Square	Coast		.22						.28								.01							.50		.30	.20						1.71
Lansdale	Schuylkill		.30									.18						.14						.41	.66	.78	.01						2.48
Lawrenceville	Susquehanna		.10		.18				.20											.05		T.	.40			.25						1.18
Lebanon	do		.02		.01				.08	.07						.07	T.	.13	T.	.01			.01	.26	.06	.33						1.05
Le Roy	do		.05		.23	.02			.15	.01						.02	.03	T.	.03	T.			.20	.15	.01	.30	.02			.02		1.24
Lewisburg	do		.01		.02				.17	.01							.04	.11	T.	T.						.40						0.76
Lock Haven	do		.16	.01	.05				.15								.08			T.			.21			T.						0.66
Marion	Potomac						.10		.12							.03		.07						.14	T.							0.46
Mauch Chunk	Delaware		.04		.30				.10									.25		.06			.02	.22	.31	.47						1.77
Mifflintown	Juniata		.01						.15	.02							T.	.14						.06	T.							0.38
Milford	Delaware		T.		.01				T.	.15						T.	.03	.09	T.	T.			T.	.18	*	*	1.32			.05		1.83
Montrose	Susquehanna				.11	.06			.22	.05									T.	.20		.20	.08	.18	*	.22						1.32
Mountain House	Juniata						.10		.14	.03								.10						.14								0.51
New Germantown	Susquehanna																							.40								0.40
Ottsville	Delaware		.80		.12	.02				.07								.17						.49	.88	1.33				.09		3.97
Philadelphia (1)	do		.40	.01	T.				.33						T.	T.		.11						.63	1.58	.44				T.		3.50
Philadelphia (2)	do		.02	.45	T.				.15	.22					T.	T.		.11						T.	1.25	1.03				T.		3.23
Philadelphia (3)	do		.02	.26	.02				T.	.26					T.			.19						.43	.30	1.94						3.42
Pocono Lake	do		T.			.33			.02								T.	.25		.10			T.	.34	.20	.30						1.54
Point Pleasant	do		.29	.02					.05	.03								.12						.38	.24	2.16						3.29
Pottsville	Schuylkill		.11		.14				.12									.20		.05				.37	.18	.19						1.36
Reading	do		.06		.07				.11									.28		T.				.39	.58	.09						1.58
Renovo	Susquehanna		.02							.35							T.	.25	.01				.20			T.						0.83
Scranton	do		.03		.17				.21	T.						T.	T.	.18	T.	.05		.03	T.	.12	.26	.28				T.		1.33
Seisholtzville	Schuylkill		.05		.02				.09									.31						.33	.34	.25				.01		1.40
Selinsgrove	Susquehanna		.04		.01				.01								.11	.21					.02		.01	.80						1.21
Shawmont	Schuylkill		.10	.20					.05	.20								.30						.37	.50	.66						2.38
Smiths Corners	do		.29						.14									.16						.43	.52	1.96						3.50
Spring Mount	do		.10		.05				.08	.03								.17					.32			.75				.01		1.51
State College	Susquehanna		.05	T.	T.				.13	T.							.10	T.	T.	T.		T.	.08									0.36
Towanda	do		T.	T.	.12				.20				T.	T.		T.	.01	.01	.01	T.		T.	.08	.06	T.	.30	.01			.06		0.86
Wellsboro	do		.08		.14				.24									T.					.30			.18						0.94
West Chester	Coast		.29	.65	.10	.01			.40	.05					.01	.02	.02	.14						.51	.79	.11						2.50
Wilkes-Barre	Susquehanna		T.	.04													*	.42	T.	.10		T.			.32							0.88
Williamsport	do		.07		.04				.08								.13						.19			.08			T.			0.59
New Jersey.																																	
Asbury Park	Coast		.01	.02	.02				.15									.30						.25	.48	.56				.05		1.84
Atlantic City	do		.02	.11	.01				.08	.05								.33						.29	.69	.35				T.		1.93
Bayonne	do		.10		.04				.01							T.		.08		.01		T.		.22	.29	.55				.15		1.45
Belvidere	Delaware		.04		.09				.18									.38		.05				.47	.24	1.33						2.78
Bergen Point	Coast		.08		.04				.05									.10	T.	T.				.37	.50	.50				.13		1.77
Boonton‖	Passaic		*	1.46	T.				.06									.08	T.	*	.02			*	.30	.50	.04			.02		2.48
Bridgeton	Coast		.18	T.	.02				.18									.42						.72	.62	.10				.03		2.27
Burlington‖	Delaware		.30		.10				.30									.18						.61	1.90	.10				.06		3.55
Canton	Coast		T.	*	.38				.24									.23						.57	*	.65						2.07
Cape May City	do		.03	.23	T.		T.		.02	.05						T.		.17						.46	.85	.26				.01		2.06
Cape May C. H	do																																
Charlotteburg	Passaic																																
Chatham‖	do		*	.45	.10	.08			*	.10								.10	.05	T.				*	.35	1.05	T.			.15		2.43
Clayton	Coast		*	.10	T.				.57									.58						*	*	1.20						2.45
College Farm	do		*	.18	.03				.06							.02		.12		T.				.21	.27	.88				.12		1.89
Culver's Lake	Delaware		.01	T.	T.				.18							T.	T.	.17	T.	.02				.20	.20	1.05				.01		1.84
Dover	Passaic		.68		.03				.06									.21		.03				*	*	1.74				.02		2.77
Elizabeth	Coast		*	.17	T.				.10									.06		T.			T.	*	*	1.25				.15		1.73
Englewood	do																																
Flemington	do		.75		.10				.04							T.	T.	.12						.28	.23	.82				.04		2.38
Freehold	do																																
Friesburg	Coast		.07	.10	.05				.34									.33						.33	*	.95				.03		2.20
Haddonfield	Delaware		.01	.19	.01				.28							.01	T.	.16						.48	.61	1.00				.05		2.80
Hammonton	Coast		.07		T.				*	.65								.49						*	.51	1.61						3.33
Hightstown	Delaware		.17		.07				.16									.20						.54	2.10	T.				.10		3.34
Imlaystown	do		.19		.09				.21									.20						*	*	2.00				T.		2.69
Indian Mills	Coast		.08	.02	.02				.46							.03		.42						.36	.40	1.61				.05		3.45
Jersey City	do		.07		T.				.02									.06	T.	T.		T.		.34	.63	.48				.11		1.71
Lakewood	do																																
Lambertville	Delaware		.30		.06				.13							T.		.12		T.				.35	.24	2.30				.04		3.54
Layton	do																																
Little Falls‖	Passaic		.84	.02	.02				.03									.08		.01		T.		.25	.73	.42				.04		2.44
Long Branch	Coast																																
Mahwah‖	Passaic		*	.94					*	.08								.04	.16	T.				*	.16	.70	.09						2.17
Moorestown	Delaware		.32		.02				.25						T.	.03		.13						.52	.30	1.80				.07		3.44
Newark	Passaic		.32		.01				T.									.10		.02		T.		.21	.38	.18				.13		1.35
New Brunswick	Coast		.26						.03									.13	T.					*	1.50	.50				.08		2.50
Newton	Delaware		.22	.02					.21									.18		.02				.39	.74	.72				.08		2.58
Northfield	Coast		.09	.17	T.				*	.11								.29						.21	.45	.75						2.07
Oceanic	do		.11		.01				.07							T.		.15						.23	.31	.66				.08		1.62
Paterson	Passaic		.79		.02				.02								T.	.11		.01		T.		.16	.22	.71				.10		2.14
Phillipsburg	Delaware		.15		.14				.08									.24		.01				.36	1.10	.91				.09		3.08
Plainfield	Coast		.21	.33	.05				.04								T.	.15	T.	.01		T.		.29	.56	.75				.09		2.48
Pleasantville	do		.10	.13	.01				*	.14								.29						.31	.61	.47						2.06
Pompton Plains‖	Passaic		*	1.28					*	.09								.10	.11	*	.11			*	.19	.82	.15			.08		2.93
Port Norris	Coast																																
Rancocas	Delaware																																
Rivervale	Coast																																
Runyon	do		.09		T.				.04									.07						.22	*	.83				.07		1.32
Somerville	do		.14						.08									.12		T.				.36	.33	1.50				.05		2.58
South Orange	do		.40		.06				T.									.10	T.	T.		T.		*	*	1.10				.10		1.76
Sussex	Hudson		*	.05	T.				.13								T.	.14		T.				.24	*	1.27				.14		1.97
Trenton	Delaware		.75		.12				.25									.46	T.					.60	*	2.15				T.		4.33
Tuckerton	Coast		.17		.02				*	.33						.02		.32						.02	.55	.18						1.61
Vineland	do		.16	.05	T.				.24									.44						.23	.38	.78				T.		2.28
Woodbine	do		.03	.16	T.				*	.22						T.		.25						.40	.90	.90				T.		2.86
West Virginia.																																	
Bayard	Potomac						.33		.18	.16	.14	T.						.13	.06			T.	.38		T.								1.38
Burlington	do			T.			T.		.15		.17														T.								0.32
Franklin	do																																
Harpers Ferry‖	do		T.						.21								T.	T.						.32	.10								0.63
Lost City	do			.02		.05		.10	.08															.10	T.								0.35
Martinsburg	do		T.			T.		.36	.06						.03		.03							.05	.25								0.78
Moorefield	do			.07	T.	.05		.11		T.					T.			T.	T.								T.							0.23
Romney‖	do		.03		.05		.10		.15	.11	T.							T.	T.	T.				.12										0.56
Upper Tract	do		.15			.13			.50	.06								T.	T.					T.										0.84
Maryland.																																	
Annapolis	Coast			.30					.20									.15						.70	T.	1.35							2.70

TABLE 2.—*Daily precipitation for November, 1909. District No. 1*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Maryland—Cont'd.																																	
Bachman's Valley	Coast																																
Baltimore	do		.03	T.	T.		.09		.20						T.	T.	T.	.12						.43	.21	.07				.07			1.15
Cambridge	do		.19						.15									.19	.23	.63	.71	.33											2.27
Cheltenham	Coast				.27						.10							.10						.50	.40								1.37
Chester	do																																
Chestertown	do		.18	.30			.03			.17						.03		.18						.65	*	.78							2.32
Chewsville	Potomac		.08				.10		.26		T.							.05					T.	.22	T.								0.71
Clear Spring	do		.05					.11	.24	T.					T.		.04	.02					.13		.05								0.64
Coleman	do		.17	.17			T.		T.	.15	T.				T.			.18						.56	.40	.11							1.74
College Park	do									.11														.55	.12								0.78
Cumberland	do			.05			T.			.15		.05						T.					T.	.02	T.								0.27
Darlington	Coast		T.	.07	T.					.27					T.	.05		.14					T.	.80	*	.39							1.72
Denton	do			.30			.11			.10						.04		.22						.52	.66	.29							2.24
Easton	do		.05	.25			.05										.09	.17						.13	.58	.37							1.69
Emmitsburg	Potomac		.05				.07			.16								.08						.22									0.58
Fallston	Coast		.12	T.	T.		T.		T.	.14						T.		.13					T.	.52	.07	.30							1.28
Frederick	Potomac		.01				.06		.22		T.							.10	T.				T.	.33	T.								0.72
Frostburg	do		.01		.09				.20	.05	.13	.03						T.	.03		.01				T.					.10			0.65
Great Falls	do									.03														.03	.50	.10							0.66
Green Spring Furnace	do						T.		.25	.10														.16	.04								0.55
Keedysville	do		.01				T.		.01	.26								.03						.19	T.								0.50
Laurel	Coast		.18				.07				T.														.73								0.98
Monrovia	Potomac		T.		T.		.12		.03	.10	.01							.30						.60	.03								1.19
Ocean City	Coast																																
Pocomoke City	do						T.											.13						*	1.02								1.15
Porto Bello	do																	T.						*	1.20								1.20
Princess Anne	do		T.	.15	T.													.42						.35	.71	.06							1.69
Rockville	Potomac			T.	T.				T.	.20														.60	.13								0.93
Salisbury	Coast		T.	.48	.02					.06					T.	T.		.29						.43	.80	.24							2.32
Sanatorium	Potomac		.09				.10		T.	.18					T.			.09					T.	.23	T.	.01							0.70
Solomons	Coast		T.	.19	T.		T.		T.	.09						T.		.09						.25	.45								1.07
Sudlersville	do		.06	.53	.01		T.			.16	T.				.02	.04		.24						.61	.70	.50				T.			2.87
Takoma Park	do		T.	.06	T.					.12	T.							.06						T.	.52	.17							0.93
Taneytown	Potomac						.05		.04	.13								.11						.28	T.								0.61
Towson	Coast		.06				T.		.03	.19						T.	T.	.14					T.	.52	.12	.04							1.10
Van Bibber	do																																
Westernport	Potomac			.04			.06		.03		.08							T.															0.21
Woodstock	Coast																																
District of Columbia.																																	
Washington	Coast		.01	.02			T.		.07	T.	T.					T.		.04						.53	.22					T.			0.89
Delaware.																																	
Delaware City	Coast			.26	T.					.42						T.	*	.09						.35	.40	.15				T.			1.67
Dover	do		.15							.21								.26						T.	1.99	.20							2.81
Milford	do		.04	.04	.05		.05			.06								.28						.40	.60	.67	.03						2.22
Millsboro	do			.35			T.											.23						1.03	.50								2.11
Seaford	do		T.	.06			.02			.02						T.		.18						.42	.88	.22				.01			1.81
Virginia.																																	
Culpeper	Rappahannock						.09			.03					.05								.56		T.								0.73
Dale Enterprise	Shenandoah						.09		.05	.40	.14								T.					.22	T.								0.90
Doswell	Coast						.15			.06														.60	T.								0.81
Fredericksburg	Rappahannock						.06			.07								T.						.85	.09					T.			1.07
Lincoln	Potomac									.25	.10														.46								0.81
Mt. Weather	do	T.		.03			T.		.22		.03				.01			.05	T.			T.	.35	.28									0.97
Nokesville	do	.42					T.			T.	.25														T.									0.67
Quantico	do																	.01						1.13	.18								1.32
Shenandoah	Shenandoah						.08			.59									T.					.33									1.00
Stanton	do			T.		T.	.08		T.	.63	T.							T.	T.					.44									1.15
Stephens City	Potomac				.02	.04				.15	.08							T.						.20	T.								0.49
Warsaw	Rappahannock			.15			.07			.16								.05						.95		.20				T.			1.58
Woodstock	Shenandoah						.08			.06														.30	T.								0.44

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 1, North Atlantic States.*

Date.	Maine.												Concord, N. H.		Massachusetts.								Providence, R. I.		Connecticut.			
	Eastport.		Greenville.		Orono.		Portland.		Rumford Falls.		Van Buren.				Amherst.		Boston.		Middleboro.		Nantucket.				Cream Hill.		Hartford.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
1...	46	32	46	16	54	19	49	35	49	27	.....	.....	54	28	62	34	52	41	62	31	57	47	62	41	66	36	64	41
2...	55	45	48	38	60	38	54	47	44	34	.....	.....	58	41	62	38	71	49	70	36	61	50	70	49	64	47	64	49
3...	57	50	52	43	57	50	54	44	50	40	.....	.....	58	39	55	42	62	49	59	52	57	48	61	44	67	50	60	47
4...	51	44	49	31	55	40	53	38	48	33	.....	.....	51	31	55	34	58	42	57	36	55	47	57	40	54	42	57	42
5...	47	36	38	32	51	36	45	37	41	36	.....	.....	44	38	45	31	47	38	50	30	47	41	43	35	42	32	44	39
6...	38	33	36	29	42	31	43	33	40	34	.....	.....	47	34	54	29	54	34	54	28	50	41	53	33	44	30	53	32
7...	45	35	44	27	47	27	44	31	44	24	.....	.....	47	20	50	21	45	32	50	23	45	37	48	29	38	26	49	28
8...	47	35	39	26	47	24	47	33	44	22	.....	.....	46	27	51	30	56	36	55	22	54	37	56	34	48	29	55	36
9...	40	31	38	24	45	28	43	33	41	24	.....	.....	47	22	51	26	49	39	55	35	51	42	50	33	48	32	50	34
10...	42	28	44	14	41	16	47	27	44	18	.....	.....	48	17	48	18	52	31	50	17	50	38	50	26	42	26	52	25
11...	49	35	51	26	53	25	49	33	46	26	.....	.....	62	30	65	34	64	44	62	27	56	42	63	39	66	34	68	44
12...	48	44	62	32	63	34	66	39	60	38	.....	.....	74	39	72	33	76	53	75	32	66	49	75	52	73	47	74	43
13...	49	42	50	40	60	41	52	44	52	38	.....	.....	57	47	62	46	53	48	54	44	51	48	62	48	62	50	62	48
14...	48	39	42	27	52	37	48	38	52	36	.....	.....	54	36	59	44	52	46	51	41	51	47	52	47	50	42	55	46
15...	49	38	55	27	49	30	62	36	59	34	.....	.....	64	36	62	48	63	48	56	41	51	45	58	48	62	43	62	48
16...	48	36	54	29	50	34	54	39	45	36	.....	.....	52	36	48	35	51	43	52	39	51	44	53	39	56	44	53	39
17...	51	36	37	28	50	33	51	40	43	37	.....	.....	47	37	56	36	61	43	59	43	57	46	58	40	58	40	59	41
18...	39	24	37	22	47	28	40	27	40	25	.....	.....	37	24	36	23	43	28	39	31	46	31	40	26	40	22	41	28
19...	28	20	28	12	31	17	37	23	32	20	.....	.....	35	20	37	21	41	27	40	18	44	31	40	24	28	18	39	25
20...	48	26	31	16	40	20	49	32	37	29	.....	.....	54	32	58	33	59	38	55	26	54	41	56	37	48	22	56	39
21...	52	43	50	29	53	30	59	44	55	31	.....	.....	63	40	66	38	66	50	63	37	57	50	64	47	62	34	67	44
22...	47	33	45	28	53	26	49	36	40	32	.....	.....	49	38	53	42	57	46	53	41	54	48	58	48	46	39	58	46
23...	56	34	45	26	59	29	57	35	45	32	.....	.....	60	33	57	28	65	34	62	42	57	43	61	32	39	30	59	29
24...	34	28	28	19	40	26	35	24	32	24	.....	.....	35	28	37	28	41	32	42	37	56	42	42	32	32	28	35	29
25...	57	33	45	20	54	23	45	28	40	30	.....	.....	42	31	38	30	46	41	59	40	56	46	44	36	30	26	39	30
26...	47	36	45	30	54	36	41	34	38	32	.....	.....	37	33	44	31	44	35	44	35	46	41	43	32	30	24	43	30
27...	38	31	39	22	42	26	41	31	40	26	.....	.....	50	28	50	27	43	33	41	29	42	40	46	30	46	22	46	30
28...	44	37	37	27	46	24	46	29	41	25	.....	.....	52	26	50	24	49	37	55	21	48	41	55	29	60	30	49	27
29...	39	24	36	21	40	31	42	26	40	25	.....	.....	43	30	43	27	46	31	44	27	45	38	45	30	40	30	43	30
30...	30	22	29	16	34	18	35	22	34	20	.....	.....	38	22	36	24	41	27	39	24	38	33	40	25	32	20	38	26
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	45.6	34.3	42.7	25.9	49.0	29.2	47.9	33.9	43.9	29.6	.....	.....	50.2	31.4	52.1	31.8	53.6	39.2	53.6	32.8	51.8	42.5	53.5	36.8	49.1	33.2	53.1	36.5

Date.	New Haven, Conn.		New York.												Pennsylvania.													
			Addison.		Albany.		Binghamton.		Cooperstown.		Indian Lake.		New York.		Clearfield.		Easton.		Everett.		Harrisburg.		Philadelphia.		Scranton.		Wellsboro.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	60	45	78	34	67	39	76	42	68	38	65	34	62	51	80	36	.....	.....	73	32	75	42	77	52	77	42	76	29
2...	64	50	65	54	64	48	63	55	60	50	59	30	65	51	65	32	.....	.....	64	39	69	56	73	58	67	52	66	51
3...	61	49	57	36	58	44	55	44	56	42	52	29	60	51	65	37	.....	.....	56	51	59	46	64	54	58	47	58	36
4...	58	45	49	35	55	41	46	37	46	39	45	28	58	45	67	35	.....	.....	59	41	58	45	63	49	51	38	57	35
5...	47	37	52	35	46	38	42	31	39	32	39	27	49	40	63	37	.....	.....	54	38	54	40	53	43	46	36	51	30
6...	56	34	60	24	52	35	53	27	46	31	40	30	55	39	60	24	.....	.....	52	35	50	34	54	44	55	30	59	22
7...	49	31	55	23	48	26	52	20	46	20	49	10	49	41	54	25	.....	.....	49	27	54	34	54	38	54	28	51	20
8...	56	46	56	42	51	39	51	41	47	35	45	25	58	42	61	38	.....	.....	65	39	60	46	63	43	58	43	55	42
9...	53	36	57	35	46	29	52	35	45	29	42	22	55	42	54	38	.....	.....	59	33	56	42	57	44	51	37	53	34
10...	53	30	47	34	48	25	47	34	46	22	42	10	53	41	47	41	.....	.....	48	33	50	40	56	42	48	34	46	33
11...	64	46	75	42	62	44	69	45	62	40	52	24	61	44	75	35	.....	.....	65	37	63	41	63	49	66	44	70	42
12...	73	48	76	35	68	38	71	37	66	45	65	29	74	49	73	36	.....	.....	73	35	72	39	71	49	71	40	73	34
13...	62	49	62	46	60	45	65	49	56	45	62	44	65	55	72	44	.....	.....	70	38	70	52	69	50	69	53	67	44
14...	54	48	66	40	53	43	58	48	58	38	59	27	55	49	69	41	.....	.....	60	41	54	47	52	50	59	48	64	39
15...	58	49	70	42	63	47	66	39	60	42	54	26	57	48	67	42	.....	.....	62	49	60	46	56	50	60	47	67	43
16...	52	41	55	34	47	38	50	35	43	38	45	31	54	44	60	35	.....	.....	57	38	53	44	54	47	52	36	56	31
17...	57	38	54	34	54	40	58	32	52	34	35	17	59	38	58	30	.....	.....	56	34	58	36	61	41	58	36	56	32
18...	39	27	55	27	40	28	32	25	34	22	30	16	38	30	35	29	.....	.....	36	30	39	34	43	34	36	28	36	26
19...	42	26	38	27	38	28	38	26	34	22	45	26	43	30	45	29	.....	.....	56	31	44	32	44	33	41	30	37	24
20...	57	42	59	33	57	38	57	36	52	34	50	38	58	40	61	24	.....	.....	78	26	63	33	61	38	60	34	61	30
21...	63	46	60	51	64	47	62	45	58	46	49	37	61	46	68	32	.....	.....	66	43	56	45	62	45	58	48	60	38
22...	59	50	63	43	56	39	60	43	54	40	53	26	60	54	71	30	.....	.....	75	49	69	51	70	54	63	47	62	42
23...	60	32	72	27	59	30	62	22	54	23	50	22	62	36	65	32	.....	.....	66	35	64	30	63	40	62	26	63	25
24...	36	30	51	23	30	24	33	21	31	22	35	11	40	30	59	31	.....	.....	40	25	36	29	41	35	33	26	30	22
25...	40	32	54	23	30	26	30	19	28	21	30	20	35	30	55	27	.....	.....	44	24	47	32	40	32	32	23	36	22
26...	43	32	58	27	40	27	38	28	34	22	27	19	47	34	50	28	.....	.....	44	36	47	38	49	37	40	31	38	26
27...	50	31	52	23	39	27	43	22	40	18	45	10	49	36	57	30	.....	.....	60	24	54	35	50	38	48	29	59	23
28...	54	29	69	26	43	24	57	24	48	22	53	15	52	37	69	25	.....	.....	68	21	61	31	57	37	53	27	68	24
29...	47	30	58	30	39	27	39	28	37	26	46	20	46	35	60	29	.....	.....	47	22	60	36	53	37	45	31	50	32
30...	44	28	54	26	33	22	40	22	32	17	40	15	42	32	58	27	.....	.....	45	23	45	34	46	34	41	26	42	23
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	53.7	38.6	59.2	33.7	50.3	34.9	52.2	33.7	47.7	31.8	46.8	23.9	54.1	41.3	61.4	32.3	.....	.....	58.2	34.3	56.7	39.7	57.3	43.2	53.7	36.6	55.6	31.8

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 1*—Continued.

Date.	New Jersey.								Martinsburg, W. Va.		Maryland.								Washington, D. C.		Millsboro, Del.		Virginia.					
	Asbury Park.		Atlantic City.		Hightstown.		Newton.				Baltimore.		Darlington.		Frederick.		Westernport.						Culpeper.		Fredericksburg		Staunton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	61	49	64	51	71	39	75	39	75	32	76	45	75	40	77	37	74	34	77	40	78	45	73	34	78	37	71	48
2...	60	50	61	57	72	40	67	44	74	38	78	58	71	55	76	56	68	48	77	60	75	55	75	58	79	61	75	49
3...	62	55	64	54	69	50	63	47	62	40	63	53	62	44	64	43	61	35	65	46	66	45	69	37	73	42	63	42
4...	59	46	62	44	61	46	60	37	64	47	65	48	62	43	65	47	60	40	56	45	75	38	65	39	69	42	66	46
5...	50	37	51	37	52	36	52	34	59	35	57	42	55	38	58	40	58	29	57	39	62	23	59	31	63	34	63	33
6...	56	33	53	38	58	27	59	27	54	35	51	42	52	32	52	38	50	38	55	42	55	35	53	41	60	39	55	41
7...	52	41	52	39	53	30	51	23	53	32	57	40	55	32	55	33	51	34	57	38	66	34	51	35	55	38	51	36
8...	55	40	58	50	62	29	56	32	69	32	67	49	63	43	68	48	70	35	69	49	69	38	65	45	71	47	71	47
9...	60	45	55	48	56	43	53	35	49	44	57	45	58	43	57	46	62	45	59	46	64	40	61	45	66	49	53	50
10...	54	45	56	48	60	29	51	22	50	44	55	43	51	34	54	43	50	44	55	41	66	38	52	43	69	45	50	43
11...	54	44	58	44	64	34	64	38	61	36	61	44	62	34	67	35	67	42	66	37	72	37	66	33	71	35	67	42
12...	74	47	73	47	74	41	76	34	68	36	71	46	71	39	74	41	75	39	75	41	77	43	72	37	75	39	74	42
13...	63	54	61	52	69	45	72	46	65	39	73	53	70	38	70	42	68	37	75	45	76	40	69	39	69	42	72	41
14...	54	49	54	50	56	44	58	46	57	43	53	48	54	39	63	49	61	43	58	49	67	42	61	45	64	51	60	43
15...	55	48	55	49	55	48	57	45	66	43	62	51	62	48	62	50	69	44	60	48	57	40	62	40	67	46	71	45
16...	54	40	55	43	53	35	51	32	63	45	59	49	55	38	63	43	59	43	67	42	65	41	66	42	70	42	71	48
17...	60	46	58	37	61	43	57	37	62	45	62	38	60	39	60	36	58	33	64	39	64	42	67	43	71	51	60	39
18...	47	33	43	31	43	33	38	26	42	33	45	34	42	35	44	34	48	31	43	31	46	34	43	35	51	36	41	28
19...	42	25	46	30	43	24	37	21	48	29	48	34	43	25	47	30	58	31	48	31	45	24	49	22	51	21	51	26
20...	55	31	56	46	62	30	57	27	66	28	67	36	59	32	67	30	68	31	67	36	65	36	65	35	68	31	66	39
21...	65	43	61	51	63	38	62	42	70	28	72	47	66	38	72	40	66	35	71	47	69	50	70	40	73	47	69	47
22...	59	51	59	51	71	47	59	45	73	51	74	54	68	51	72	52	75	47	74	52	73	50	71	48	75	50	72	49
23...	64	36	58	38	66	39	60	32	50	49	64	37	65	38	63	35	69	35	63	34	66	40	66	40	70	41	51	39
24...	40	34	43	32	39	30	34	28	38	29	37	32	39	31	38	33	48	28	37	32	50	32	41	31	42	32	39	29
25...	35	31	35	31	33	30	32	26	50	29	51	32	39	30	52	35	45	26	52	35	43	34	52	35	55	35	54	29
26...	48	31	48	33	47	31	48	26	51	34	53	40	46	35	51	35	55	34	53	37	51	35	56	30	56	34	57	26
27...	48	34	46	33	52	27	47	25	53	29	53	37	51	33	55	28	60	26	57	32	53	29	52	25	54	28	64	29
28...	56	35	57	33	54	25	59	21	61	26	66	35	59	26	66	27	72	26	63	29	60	27	59	25	65	26	71	31
29...	55	31	47	33	50	32	51	31	54	26	60	38	56	35	62	35	60	40	59	36	51	28	55	39	59	39	59	34
30...	42	32	43	29	45	24	44	22	46	31	48	35	45	30	48	24	46	20	47	33	45	27	46	31	48	30	50	25
31...																												
Mns	54.6	40.5	54.4	42.0	57.1	35.6	55.0	33.0	58.4	36.3	60.2	42.8	57.2	37.3	60.7	38.8	61.0	35.8	61.1	40.4	62.4	37.4	60.4	37.5	64.6	39.7	61.2	38.9

Climatological Data for November, 1909.

DISTRICT No. 2, SOUTH ATLANTIC AND EAST GULF STATES.

CHARLES F. VON HERRMANN, District Editor.

GENERAL SUMMARY.

Unusually warm, dry, and sunshiny weather prevailed over the entire district during the month of November. The temperature averaged nearly 5° above the normal, the precipitation tion was deficient everywhere, and the number of clear days was very large. Several stations in North Carolina, South Carolina, Alabama, and Florida reported no appreciable rainfall during the month, and in many sections drought prevailed to an extent somewhat detrimental to agricultural interests, especially in Florida. The pleasant weather is accounted for by the fact that no barometric depressions passed over the Southern States, the atmospheric pressure being above normal during most of the month. The scattered showers on the 1st to 3d were associated with a moderate storm in the upper Lake region. The rainfall of the 6th to 8th, which was confined chiefly to the northern parts of the district, resulted from inflowing moist northeast winds from the North Atlantic caused by the marked area of high barometer of over 30.7 inches in New England. A similar area of high pressure existed over the North Atlantic States on the 10th and the highest pressure for the month was generally registered between the 8th and 10th, the maximum being 30.66 on the 10th at Richmond, Va. The moderate disturbance that passed from Iowa to western New York on the 16th and 17th caused light rains that were fairly well distributed over the district, which were followed by a period of much colder weather with freezing temperatures nearly to the coast line. General rain occurred in the district on the 22d and 23d under the influence of a moderate barometric depression that formed a well-defined storm center near St. Louis on the morning of the 22d, but next day extended merely as a trough of low pressure from Georgia to Maine. The lowest atmospheric pressure in the district was registered on the 22d to 24th, the minimum being 29.57 inches at Hatteras, N. C.

Early morning fogs formed at many places on several dates, especially on the 8th and 9th. The first killing frosts were reported at a large number of stations on the 18th and 19th, including all the important stations on the Atlantic coast, as Norfolk, Va., Wilmington, N. C., Charleston, S. C. (heavy), and Savannah, Ga.

TEMPERATURE.

With the exception of a small area in the extreme southern portion of Florida the temperature over the entire district was above normal. From northern Florida the excess gradually increased toward the northwest until in northern Mississippi the average temperature was more than 8° above the normal. In several small areas in northern Alabama and Georgia, and in the western portions of South Carolina and North Carolina the excess exceeded 6°, but toward the northeast more moderate temperatures prevailed. In Georgia, Alabama, and Mississippi the State average temperatures for November, 1909, were without exception the highest for November within a period of 20 years. In South Carolina and Florida November, 1896, and 1902, were slightly warmer. The highest monthly means were generally above 60° and the lowest not below 50°, except at 2 places in Virginia, namely, Hot Springs, 46.8°, and Lexington 48.6.°

Monthly mean temperatures above 70° occurred at the following places in Florida: Key West, 73.4°; Miami, 73.1°; Hypoluxo, 73.0°; and Jupiter, 72.1°.

In Virginia and North Carolina the 1st and 2d were the warmest days of the month; farther south the highest temperatures were generally registered on the 4th to 7th, the maximum slightly exceeding 90° in southern Georgia and Florida, but not exceeding 80° in Virginia. The first period of low temperatures prevailed from the 17th to the 20th; on the 19th the lowest temperatures for the month were experienced everywhere, with killing frosts nearly to the Gulf and to the Atlantic coasts. The minimum was 15° at Ramseur, N. C. Another period of moderately cold weather prevailed from the 23d to 26th, after which the temperature again rose decidedly above normal, except in the northern portion of the district.

PRECIPITATION.

The rainfall during November was fairly well distributed but was much below normal in all portions of the district. The State averages show deficiencies of from 1.29 to 1.92 inches, and when it is considered that normally November has the smallest rainfall for the year, the fact is sufficient to indicate a widespread drought. In Virginia many springs went dry, and in some instances cattle suffered for lack of water, and in most other States farming operations were delayed. The monthly total rainfall at a large majority of stations was less than 2 inches; the amount exceeded 3 inches at only 2 stations in Florida, viz: St. Augustine, 3.36 inches, and Fernandino, 3.27 inches. The heaviest rains fell over very small areas on the east coast of Florida, in the interior of Alabama, and at single stations in South Carolina, North Carolina, and Georgia. No rainfall occurred at Cedar Keys and Rockwell, Fla., and only traces at Ozark, Ala., Jacksonboro, S. C., Southern Pines and Pinehurst, N. C. A light fall of snow amounting to 0.4 inch (unmelted) occurred at Hot Springs, Va., on the 18th. The average number of days with rain was only 4.

The rains occurred in brief periods about the 1st to 3d, 6th to 8th, and 16th to 17th, and the most general rains fell on the 22d and 23d, when a few stations received amounts exceeding an inch. The maximum 24-hourly fall was 2.10 inches at Tallapoosa, Ga. Light hail fell at a few places in South Carolina on the 6th, and in Georgia and Alabama on the 22d. Relatively few thunderstorms were reported.

RIVER CONDITIONS.

The rivers throughout the district remained at low stages the entire month. The stream flow was very uniform, the range between the highest and lowest stages for the month being remarkably small. In some cases the average stages for the month were much below the normal flow, as for example, at Cheraw, S. C., where the mean stage for November during the past 17 years is 3.4 feet, the mean for November, 1909, however, was only 2.3 feet; but, as a rule, no new records were established. The heavy rains of spring and summer seem to have fully supplied the underground sources which enable the rivers to maintain their flow without material diminution for a considerable time during periods of drought.

MISCELLANEOUS PHENOMENA.

The prevailing winds were from the southwest in Virginia and South Carolina, from the north in North Carolina, and from easterly directions in the remaining portions of the district. Only two regular stations reported maximum wind velocities exceeding 40 miles an hour, namely, Atlanta, Ga., 52 miles from the southwest on the 22d and Hatteras, N. C., 49 miles from the northwest on the 24th. The wind movement was small and exceeded an average of 10 miles an hour for the month only at the coast stations, Norfolk, Hatteras, Savannah, Jupiter, and Pensacola, and at Atlanta in the interior. The average number of clear days ranged from 18 in Virginia, South Carolina, and Mississippi to 22 in Alabama.

TABLE 1.—*Climatological data for November, 1909. District No. 2, South Atlantic and east Gulf States.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Virginia.																			
Arvonia	Buckingham	350	5	51.2	.....	74	2†	24	19	38	0.91	.....	0.65	T.	5	21	2	7	sw.	Rev. Plummer F. Jones.
Ashland§	Hanover	221	18	50.8	+ 3.5	79	2	23	19	35	1.02	− 0.57	0.88	T.	2	10	15	5	s.	E. L. C. Scott.
Buchanan	Botetourt	820	5	.....	.....	.....	.....	.....	.....	.....	0.41	.....	0.32	0.0	2	11	3	9	w.	D. D. Booze.
Callaville	Brunswick	250	15	53.6	+ 4.7	79	1	22	17	34	0.94	− 1.16	0.60	0.0	5	18	8	4	sw.	F. M. Gage.
Cape Henry	Princess Ann	20	35	54.2	+ 2.1	78	1	32	19	25	0.49	− 2.25	0.28	0.0	7	17	4	9	sw.	U. S. Weather Bureau.
Charlottesville	Albemarle	800	20	53.3	+ 5.7	79	2	26	19	33	0.60	− 1.97	0.26	T.	4	16	6	8	sw.	Leander McCormick.
Clarksville	Mecklenburg	.....	15	.....	.....	.....	.....	.....	.....	.....	0.50	− 2.32	0.35	0.0	3	19	10	1	sw.	J. Henry Ligon.
Columbia §	Fluvanna	246	11	51.3	+ 5.1	79	2	23	19†	42	1.28	− 0.82	0.91	0.0	5	17	8	5	sw.	Agent, C. & O. R. R.
Danville	Pittsylvania	413	9	.....	.....	.....	.....	.....	.....	.....	0.21	.....	0.08	T.	4	18	4	8	w.	C. G. Watkins.
Diamond Springs	Princess Anne	20	....	53.2	.....	80	12	24	19	44	0.81	.....	6.57	0.0	3	.....	.....	.....	.....	Virginia Experiment Sta.
Dinwiddie	Dinwiddie	267	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. N. Colson.
Hampton	Elizabeth City	5	26	54.6	+ 4.6	73	1	31	19	28	0.77	− 1.87	0.37	0.0	3	18	4	8	ne.	Hampton Institute.
Hot Springs	Bath	2,195	17	46.8	+ 5.6	69	9	20	30	35	1.09	− 1.07	0.48	0.4	5	22	5	3	.....	James P. Scott.
Ivor	Southampton	87	....	54.6	.....	77	13†	26	28	46	0.90	.....	0.60	0.0	3	.....	.....	.....	.....	Agent N. & W. Ry.
Lexington§	Rockbridge	1,060	32	48.6	+ 5.1	78	2	19	30	41	0.97	− 1.80	0.64	T.	5	25	3	2	.....	Virginia Mil. Institute.
Lynchburg	Campbell	685	38	52.5	+ 5.6	77	12	26	30	42	0.52	− 2.17	0.33	T.	5	16	8	6	nw.	U. S. Weather Bureau.
New Castle	Craig	1,300	....	.....	.....	.....	.....	.....	.....	.....	0.16	.....	0.09	0.0	2	.....	.....	.....	.....	Miss J. L. Martin.
Newport News§	Warwick	55	6	54.6	.....	76	12	30	19	28	1.10	.....	0.48	T.	6	18	7	5	sw.	Ernest W. Sniffen.
Norfolk	Norfolk	91	39	55.0	+ 4.0	76	1	31	19	31	0.52	− 2.18	0.34	0.0	4	16	6	8	n.	U. S. Weather Bureau.
Petersburg	Dinwiddie	60	22	52.2	+ 3.4	79	1	24	19	39	1.28	− 1.17	0.40	0.0	5	20	0	5	n.	Central State Hospital.
Randolph	Charlotte	334	5	.....	.....	.....	.....	.....	.....	.....	0.13	.....	0.10	0.0	2	15	11	4	w.	W. B. Spencer.
Richmond	Henrico	144	30	53.1	+ 3.9	75	2	25	19	31	0.62	− 1.76	0.48	T.	5	13	13	4	s.	U. S. Weather Bureau.
Rocky Mount	Franklin	1,150	15	51.4	+ 2.5	75	8†	19	19	48	0.22	− 2.66	0.22	0.0	1	23	0	7	ne.	G. W. B. Hale.
Sabot	Goochland	125	....	.....	.....	.....	.....	.....	.....	.....	0.71	.....	0.57	0.0	4	25	0	5	.....	W. A. Jacobs.
Saxe	Charlotte	350	6	52.8	.....	78	2†	18	19	48	1.54	.....	1.24	0.0	2	25	0	5	s.	State Experim. Farm.
Spottsville (near)	Surry	15	21	53.6	+ 5.0	77	1	20	19	34	0.70	− 2.24	0.50	0.0	3	18	6	6	sw.	B. W. Jones.
Williamsburg	James City	70	18	52.6	+ 4.5	77	1	24	19	32	0.35	− 2.14	0.25	T.	3	20	4	6	sw.	Eastern State Hospital.
North Carolina.																				
Beaufort	Carteret	10	7	59.8	.....	76	1†	36	25	27	2.52	.....	1.05	0.0	7	22	4	4	ne.	H. D. Allen.
Belhaven	Beaufort	4	....	56.3	.....	80	1†	22	19	42	1.23	.....	0.68	0.0	4	23	2	5	w.	William S. Hopkins.
Brewers	Wilkes	1,950	12	51.8	+ 4.4	79	28	21	19	50	.....	.....	.....	.....	.....	.....	.....	.....	w.	W. L. Brewer.
Caroleen	Rutherford	806	9	54.4	.....	79	5	23	19	43	0.28	.....	0.15	0.0	3	19	9	2	s.	S. B. Tanner.
Chalybeate Springs	Harnett	500	3	53.2	.....	78	13	18	19	47	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Smith.
Chapel Hill	Orange	500	51	55.6	+ 5.7	79	2†	22	19	48	0.55	− 2.23	0.36	0.0	5	17	9	4	se.	Prof. A. H. Patterson.
Charlotte	Mecklenberg	808	33	56.2	+ 5.8	77	4	30	19	32	0.44	− 2.42	0.35	0.0	3	15	10	5	ne.	U. S. Weather Bureau.
Chimney Rock	Rutherford	1,150	....	55.5	.....	81	2	25	19	42	0.07	.....	0.06	0.0	2	22	5	3	w.	Dr. L. B. Merse.
Clinton	Sampson	156	2	57.3	.....	80	4†	21	19	41	0.51	.....	0.35	0.0	3	15	12	3	n.	Thomas Boyette.
Eagletown	Northampton	66	4	54.0	.....	77	1	22	19	34	0.82	.....	0.28	0.0	5	19	7	4	sw.	J. T. Elliott.
Edenton	Chowan	30	15	53.0	+ 1.4	74	2	25	19	32	2.00	− 0.85	0.90	0.0	4	16	8	6	ne.	E. R. Conger.
Fayetteville	Cumberland	170	22	57.3	+ 5.5	80	1†	22	19	42	0.21	− 2.60	0.12	0.0	4	.....	.....	.....	.....	Frank Glover.
Goldsboro	Wayne	102	39	54.8	+ 3.6	87	1	23	19	45	0.45	− 1.85	0.12	0.0	6	.....	.....	.....	s.	Mrs. N. B. Taylor.
Graham	Alamance	656	7	.....	.....	.....	.....	.....	.....	.....	0.15	.....	0.08	0.0	2	.....	.....	.....	.....	Dr. W. R. Goley.
Greensboro	Guilford	843	28	54.6	+ 6.0	78	2†	25	19	42	0.45	− 2.22	0.25	0.0	4	.....	.....	.....	sw.	A. R. Horry.
Greenville	Pitt	75	16	.....	.....	.....	.....	.....	.....	.....	2.12	− 0.55	1.30	0.0	6	.....	.....	.....	.....	C. V. York.
Hatteras	Dare	11	35	58.9	+ 2.2	78	2	40	19	20	2.24	− 2.43	1.27	0.0	8	21	5	4	n.	U. S. Weather Bureau.
Henderson	Vance	490	16	53.2	+ 3.7	74	1†	27	19	31	0.34	− 2.41	0.14	0.0	4	20	8	2	ne.	Enoch Powell.
Kinston	Lenoir	46	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Rev J. R. Rountree.
Lenoir	Caldwell	1,186	36	52.1	+ 6.1	78	2	20	19	51	0.88	− 2.21	0.57	0.0	3	26	1	3	s.	G. M. Goforth.
Lexington	Davidson	810	8	54.8	.....	78	2†	22	19	43	0.74	.....	0.30	0.0	4	23	6	1	s.	H. R. Berrier.
Lincolnton	Lincoln	994	4	54.2	.....	80	1	22	19†	48	1.30	.....	1.00	0.0	2	26	0	4	sw.	L. B. Thompson.
Louisburg	Franklin	375	18	53.9	+ 5.5	75	2†	22	19	36	0.38	− 2.10	0.38	0.0	1	16	8	6	se.	T. B. Wilder.
Lumberton	Robeson	102	26	56.0	+ 4.0	83	1	22	19	49	0.44	− 1.78	0.40	0.0	4	.....	.....	.....	nw.	B. M. Davis.
Manteo	Dare	12	4	56.2	.....	77	2	30	19	28	1.22	.....	0.42	0.0	5	21	3	6	n.	U. S. Weather Bureau.
Marion	McDowell	1,425	17	55.0	+ 6.1	83	3	21	19	48	0.87	− 2.27	0.56	0.0	4	17	10	3	w.	Thomas McGuire.
Moncure	Chatham	145	15	54.2	+ 4.0	79	13	18	25	50	0.17	− 2.42	0.10	0.0	3	20	5	5	nw.	B. J. Utley.
Monroe	Union	586	15	55.6	+ 5.5	81	4	18	19	48	0.20	− 2.70	0.20	0.0	1	21	6	3	sw.	T. A. Ashcraft.
Morganton	Burke	1,135	22	53.8	+ 5.7	77	2	22	19	44	0.48	− 2.23	0.25	0.0	3	25	3	2	nw.	H. D. Judd.
Mt. Airy	Surry	1,048	21	51.4	+ 5.0	78	15	18	20	53	0.55	− 2.08	0.30	0.0	3	26	3	1	sw.	Prof. A. H. Merritt.
Mt. Holly	Gaston	616	12	.....	.....	.....	.....	.....	.....	.....	0.80	− 1.80	0.46	0.0	4	.....	.....	.....	.....	John W. Holland.
Nashville	Nash	190	5	54.1	.....	79	5	20	19	46	0.50	.....	0.26	0.0	5	13	12	5	n.	J. B. Boddie.
Newbern	Craven	12	27	58.5[a]	+ 4.4	82	1	24	19	47	1.01	− 1.92	0.30	0.0	7	.....	.....	.....	ne.	James B. Hill.
Pinehurst§	Moore	650	5	57.6	.....	84	4	25	19	39	T.	.....	T.	0.0	0	17	9	4	w.	General Office..
Pittsboro	Chatham	480	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. E. Morgan.
Raleigh	Wake	390	38	55.4	+ 5.2	76	6	30	19	32	0.11	− 2.24	0.06	0.0	4	13	12	5	ne.	U. S. Weather Bureau.
Ramseur	Randolph	442	2	51.8	.....	77	4†	15	19	50	0.18	.....	0.18	0.0	1	14	13	3	nw.	P. P. Turner.
Randleman	Randolph	810	4	.....	.....	.....	.....	.....	.....	.....	0.52	.....	0.22	0.0	5	.....	.....	.....	.....	John R. Walton.
Reidsville	Rockingham	828	10	55.4[b]	+ 7.7	79	4†	30	30	41	0.69	− 1.88	0.24	0.0	5	18	3	9	sw.	E. M. Redd.
Rockingham	Richmond	210	14	56.6[b]	+ 4.8	80	4†	22	19	45	1.45	− 1.11	1.45	0.0	1	.....	.....	.....	.....	H. S. Ledbetter.
Roxboro	Person	600	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. C. Bradsher.
Salem	Forsythe	1,000	14	52.3	+ 4.3	77	2	21	19	47	1.03	− 1.53	0.75	0.0	2	.....	.....	.....	.....	Rev. H. E. Rondthaler.
Salisbury	Rowan	760	25	.....	.....	.....	.....	.....	.....	.....	1.33	− 1.30	0.55	0.0	5	23	3	4	n.	Miss Thelma Wilkinsor.
Saxon	Stokes	900	17	52.0	+ 5.1	76	1†	18	19	44	0.58	− 2.07	0.38	0.0	4	18	6	6	sw.	R. P. McAnnaly.
Scotland Neck	Halifax	80	5	54.6	.....	78	13	23	19	37	0.90	.....	0.40	0.0	6	14	3	13	ne.	J. Y. Savage.
Selma	Johnston	225	19	53.6	+ 2.8	80	2	22	19	38	0.90	− 1.79	0.45	0.0	5	.....	.....	.....	.....	Dr. R. J. Noble.
Settle	Iredell	700	13	54.0	+ 5.3	78	2	20	19	48	0.60	− 2.13	0.30	0.0	3	21	3	6	se.	C. H. Smith.
Sloan	Duplin	50	16	56.2[b]	+ 3.3	82	2	22	19	44	1.15	− 1.67	0.35	0.0	4	18	8	4	s.	D. M. Sholar.
Snowhill	Greene	80	4	55.6	.....	79	1†	20	19	41	0.89	.....	0.47	0.0	6	14	10	6	n.	Lev. J. H. Mewborn.
Southern Pines	Moore	519	19	58.1	+ 5.1	79	6	29	19	37	T.	− 2.75	T.	0.0	0	17	10	3	sw.	Mrs. P. H. Beck.
Southport	Brunswick	18	54	60.2	+ 3.5	82	4	30	19	33	0.41	− 2.37	0.22	0.0	3	20	8	2	ne.	Mrs. Charles E. Taylor.
Statesville	Iredell	950	21	55.8	+ 9.0	80	2†	23	19	46	1.11	− 1.81	0.85	0.0	3	17	9	4	sw.	D. M. Thompson.
Tarboro	Edgecombe	50	24	55.3[a]	+ 4.2	81	1†	23	19	41	1.21	− 1.41	0.78	0.0	6	.....	.....	.....	n.	E. V. Zoeller.
Troy	Montgomery	.....	....	56.4[c]	.....	76	4	27	19	34	2.21	.....	1.90	0.0	3	.....	.....	.....	nw.	Mrs. O. B. Deaton.
Weldon	Halifax	81	37	53.4	+ 4.9	81	13	22	19	45	0.63	− 1.82	0.33	0.0	7	.....	.....	.....	s.	H. S. S. Cooper.
Whiteville	Columbus	59	4	56.0	.....	82	2†	19	19	46	0.43	.....	0.20	0.0	3	10	16	4	nw.	Rev. C. C. Smith.
Willard	Pender	51	1	54.7	.....	81	2	21	19	44	1.70	.....	0.63	0.0	5	19	6	5	s.	J. H. Jefferies.
Wilmington	New Hanover	52	38	58.4	+ 4.3	78	2	33	19	31	0.57	− 1.88	0.30	0.0	5	15	12	3	n.	U. S. Weather Bureau.
Yanceyville	Caswell	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. Y. Kerr.
South Carolina.																				
Aiken	Aiken	565	25	59.0	+ 4.5	81	4	32	9†	34	0.50	− 2.07	0.50	0.0	1	24	5	1	w.	Dr. C. F. McGahan.
Allendale	Barnwell	186	21	60.1	+ 4.6	83	7	27	19	36	0.50	− 1.29	0.50	0.0	1	19	4	7	.....	A. R. Hiers.
Anderson	Anderson	764	8	56.8	.....	85	4	26	19	36	0.80	.....	0.48	0.0	3	23	1	6	w.	H. H. Russell.
Batesburg	Lexington	656	21	61.1	+ 8.4	86	6	31	25	42	0.95	− 1.60	0.83	0.0	4	20	4	6	n.	E. J. Hite.
Beaufort	Beaufort	20	23	61.8	+ 2.7	77	15	33	19	30	0.50	− 1.75	0.49	0.0	2	17	10	3	ne.	Miss Lillian H. Rice.
Bennettsville	Marlboro	151	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. S. McCall.
Blackville	Barnwell	296	21	59.7	+ 4.2	85	6	28	18	38	0.51	− 1.57	0.20	0.0	4	18	4	8	ne.	Miss M. E. Lange.
Blairs	Fairfield	293	4	.....	.....	.....	.....	.....	.....	.....	0.90	.....	0.70	0.0	2	19	1	10	ne.	T. S. McMeekin.
Bowman	Orangeburg	160	8	58.5	.....	83	4	20	19	44	0.96	.....	0.45	0.0	4	17	11	2	sw.	B. O. Evans.

TABLE 1.—*Climatological data for November, 1909. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
South Carolina—Cont'd.																			
Calhoun Falls	Abbeville	508	16								1.06	− 1.57	0.71	0.0	2	24	0	6	nw.	P. J. Pfiefer.
Camden(1)	Kershaw		3	58.5		81	4	30	19†	35	0.43		0.21	0.0	3	17	10	3	ne.	J. B. Mickle.
Camden(2)	Kershaw	222	43								0.20	− 2.02	0.12	0.0	2	20	4	6	ne.	J. C. Brown.
Catawba	York	562	4								0.36		0.18	0.0	4	17	4	9	ne.	Jas. C. Faris.
Chappells	Newberry	402	4								0.91		0.70	0.0	3	16	10	4	sw.	M. C. Rivers.
Charleston	Charleston	48	39	61.4	+ 3.3	83	4	38	19	27	2.44	− 0.43	1.65	0.0	7	14	11	5	n.	U. S. Weather Bureau.
Cheraw(1)	Chesterfield	144	21	57.2	+ 5.1	80	4†	24	19	42	1.37	− 0.82	0.54	0.0	6	16	6	8	nw.	W. R. Godfrey.
Cheraw(2)	Chesterfield	144	16																	Jno H. Powe.
Clarks Hill	Edgefield	456	7																	Wm. S. Middleton.
Clemson College	Oconee	850	18	54.3	+ 3.4	80	4	27	19†	33	1.12	− 1.78	0.53	0.0	4	20	5	5	s.	Prof. John N. Hook.
Columbia	Richland	351	22	58.0	+ 4.2	83	4	29	19	34	0.42	− 1.81	0.27	0.0	4	13	11	6	ne.	U. S. Weather Bureau.
Conway	Horry	25	17	57.8	+ 3.7	80	2†	29	26	37	0.81	− 1.57	0.59	0.0	2	24	0	6	sw.	P. C. Quattlebaum.
Darlington	Darlington	175	14	56.8[b]		84[b]	4	23[b]	19	42[b]	2.07[b]	− 0.38	1.12[b]	0.0	3					D. C. McCall.
Dillon	Marion	100	5					23	19		0.69		0.32	0.0	3					A. E. Rowell.
Effingham	Florence	106	17								1.80	− 0.67	0.90	0.0	4	21	1	8	sw.	H. B. McCall.
Ferguson	Berkeley	51	2								0.90		0.40	0.0	3	17	2	11	e.	D. B. Gilliland, jr.
Florence	Florence	136	21	57.6	+ 3.3	84	4	26	19	41	0.20	− 2.21	0.12	0.0	2	20	1	9	sw.	H. K. Gilbert.
Georgetown	Georgetown	12	16	60.2	+ 4.2	80	2†	33	19	30	0.55	− 1.78	0.22	0.0	3	19	9	2	ne.	Wm. Alden James.
Greenville	Greenville	989	17	56.6	+ 7.3	84	14	27	19	48	1.30	− 2.03	0.50	0.0	4	19	3	8	ne.	Mrs. S. A. Crittenden.
Greenwood	Greenwood	671	21	56.1	+ 4.2	80	4	31	19†	36	0.96	− 1.91	0.78	0.0	3	19	0	11	w.	M. M. Calhoun.
Heath Springs	Lancaster	568	8	58.2		78	5†	33	18	34	0.63		0.28	0.0	5	18	10	2	w.	J. A. Weaner.
Jacksonboro	Colleton	13	1	58.7		79	2†	29	19†	40	T.		T.	0.0	0	19	8	3	se.	W. E. Haskell, jr.
Kingstree(1)	Williamsburg	54	15	58.6	+ 3.2	78	14	24	19	43	2.88	+ 0.70	2.00	0.0	3	15	2	13	ne.	J. A. Scott.
Kingstree(2)	Williamsburg	54	21																	A. O. Matthews.
Liberty	Pickens	900	15	56.9	+ 6.4	82	4	26	19	34	1.29	− 1.49	0.80	0.0	5	19	8	3	sw.	Jno T. Boggs.
Little Mountain	Newberry	711	16	59.1	+ 4.7	81	4	32	25	32	0.68	− 1.72	0.30	0.0	4	19	6	5	w.	Dr. J. M. Sease.
Newberry	Newberry	502	5	56.6		85	4	26	19	40	2.48		1.65	0.0	10	14	9	7	sw.	W. G. Peterson.
Pelzer	Anderson	873	4								0.88		0.44	0.0	3	15	4	11	w.	John M. Ward.
Pinopolis	Berkeley	54	16								1.90	− 0.59	0.90	0.0	4					Miss E. P. Ravenel.
St. George	Dorchester	109	21	57.8	+ 2.2	80	4	25	19	35	0.60	− 1.40	0.60	0.0	1	15	0	15		G. T. Lewis.
St. Matthews	Calhoun	209	21	56.4	+ 1.7	81	4	27	19	40	0.22	− 1.96	0.10	0.0	3	21	0	9		J. S. Wannamaker.
Saluda	Saluda	530	7	56.1[b]		81[b]	4	25[b]	19	38[b]	0.39[b]		0.39[b]	0.0	1[b]	20[b]	4[b]	4[b]	sw.	Alvin Etheridge.
Santuc	Union	512	15	56.3	+ 5.1	81	4	24	19	39	0.79	− 2.11	0.39	0.0	4	17	8	5	w.	E. W. Jeter.
Smith Mills	Williamsburg	62	14								1.06	− 1.54	0.96	0.0	2	19	1	10	e.	W. G. Walker.
Society Hill	Darlington	192	18																	J. J. Lucas.
Spartanburg	Spartanburg	873	18	56.5	+ 5.2	88	6	26	19	44	1.25	− 1.60	0.93	0.0	6	13	0	17		F. P. Robinson.
Summerville	Dorchester	75	12	59.6	+ 3.9	84	4	29	19	37	1.52	− 1.11	0.93	0.0	5	9	18	3	sw.	Miss E. H. Gadsden.
Trenton	Edgefield	620	16	58.2	+ 2.7	79	7	29	18†	35	1.06	− 1.53	0.75	0.0	3	20	8	2	w.	C. A. Long.
Trial	Berkeley	85	23	58.4	+ 3.0	83	4	25	19	40	1.09	− 1.19	0.52	0.0	3	11	17	2	nw.	Etsell Gaillard
Walhalla	Oconee	1,061	18	57.4	+ 8.0	82	4	28	18	36	0.63	− 2.57	0.50	0.0	2	18	9	3	nw.	N. L. Fant.
Walterboro	Colleton	69	5	60.5[b]		87	4	28	19	43	0.85		0.42	0.0	4	17	13	0		J. A. Westerberg.
Winnsboro	Fairfield	545	20																	John W. Seigler.
Winthrop College	York	690	10	57.8		80	4	27	19	34	0.50		0.34	0.0	3	22	5	3	s.	E. R. Rivers.
Yemassee	Hampton	23	14	58.5	+ 2.6	83	4	26	19	39	0.83	− 1.23	0.44	0.0	4	21	2	7		J. G. Hutson.
Georgia.																				
Abbeville	Wilcox		6								0.56		0.44	0.0	2				e.	W. H. Calhoun.
Adairsville	Bartow	772	17	53.9[a]	+ 3.6	78[a]	7	24[a]	19	35[a]	0.90	− 2.07	0.47	0.0	3					Dr. J. P. Bowdoin.
Albany	Dougherty	230	24	63.3	+ 5.6	87	4†	31	19	43	0.28	− 2.04	0.18	0.0	3				nw.	Geo C. Brosnan.
Allapaha	Berrien	293	20	61.6	+ 4.0	89	4	25	19	46	0.47	− 1.35	0.47	0.0	1				n.	Miss Gladys Lucas.
Americus	Sumter	362	26																	L. A. Smith.
Athens	Clarke	694	32	55.2	+ 3.9	76	5	28	19	37	1.56	− 1.99	1.21	0.0	3				w.	C. D. Cox.
Atlanta	Fulton	1,218	44	58.2	+ 6.5	78	4	30	19	28	1.48	− 1.95	1.10	0.0	5	19	6	5	e.	U. S. Weather Bureau.
Augusta	Richmond	180	43	58.6	+ 4.3	83	4	29	19	37	0.62	− 2.11	0.61	0.0	2	16	11	3	nw.	U. S. Weather Bureau.
Bainbridge	Decatur	119	17	62.2	+ 4.0	89	4	26	19	50	0.34	− 1.14	0.22	0.0	2				nw.	Mrs. C. O. Wimberley.
Barnesville	Pike	875	1	59.8		82	4	28	19	33	0.75		0.45	0.0	3					Prof. J. R. Leavell.
Blakely	Early	300	18	61.8	+ 4.2	87	4	26	19	44	0.24	− 2.40	0.24	0.0	1	17	12	1	n.	Ralph M. Hobbs.
Brunswick	Glynn	14	11																	J. B. High.
Butler	Taylor	650	7								0.66		0.51	0.0	2				nw.	Mrs. Mamie F. Wallace.
Camak	Warren	613	16	60.3[a]	+ 6.7	88	4	29	19	49	0.95	− 1.31	0.71	0.0	3					J. A. Chapman.
Canton	Cherokee	894	16																	J. M. McAfee.
Carlton	Madison	557	10								1.30	− 1.10	0.94	0.0	2				w.	M. C. Power.
Carrollton	Carroll		12																	Prof. J. H. Melson.
Clayton	Rabun	2,100	16	53.4	+ 5.1	79	4	22	19	42	1.12	− 2.70	0.70	0.0	2	23	3	4	w.	A. J. Duncan.
Columbus	Muscogee	262	22	62.0[b]	+ 6.5	86	5†	30	20†	43	1.11	− 1.67	0.48	0.0	3				e.	J. W. Long.
Covington	Newton	800	16								1.57	− 1.33	0.99	0.0	3				ne.	Rufus Cruse.
Cuthbert	Randolph	446	10	60.4[a]	+ 3.2	86	4	30	18	47	0.21		0.16	0.0	2	19	11	0		Prof. W. McMichaels.
Dahlonega	Lumpkin	1,519	17	55.8	+ 6.0	77	4	24	19	32	1.74	− 1.57	0.77	0.0	3	14	13	3	nw.	Prof. B. P. Gaillard
Diamond	Gilmer	2,020	19	54.2[a]	+ 5.7	78	4	23	19	37	1.08	− 2.95	0.57	0.0	3	21	5	4		R. A. Kimzey.
Douglas	Coffee	500	2																	Prof. C. W. Davis.
Dublin	Laurens	452	15								1.32	− 1.29	0.74	0.0	3					Mrs. M. E. Martin.
Dudley	Laurens		7	60.6		85	4	26	19	42	0.90		0.55	0.0	2	26	3	1	ne.	J. H. M. O'Sullivan.
Eastman	Dodge	361	18	63.7	+ 6.1	89	4	34	19	35	0.78	− 1.07	0.69	0.0	2				e.	Miss A. M. Bohannon.
Eatonton	Putnam		6	58.6		83	4	26	19	42	0.73		0.45	0.0	3					Prof. W. C. Wright.
Elberton	Elbert	710	18	58.4	+ 5.6	82	4	28	19	36	1.20	− 1.65	0.75	0.0	4	23	6	1	e.	H. A. Roebuck.
Experiment	Spalding	946	9	58.4		80	5	28	19	33	0.96		0.60	0.0	3	20	9	1		Martin V. Calvin.
Fitzgerald	Ben Hill	515	11																	W. C. Wilkerson.
Forsyth	Monroe	735	27	60.7[a]	+ 4.3	84	4	30	22	44	1.32	− 1.65	1.32	0.0	1					Miss S. A. B. Gibson.
Fort Gaines	Clay	166	22	59.3	+ 3.2	85	4†	25	19	50	0.25	− 2.40	0.25	0.0	1				ne.	Mrs. Eva T. Graham
Gainesville	Hall	1,254	33	53.7	+ 3.9	76	4	29	19†	33	1.37	− 2.05	0.80	0.0	3				e.	W. C. Walker.
Gillsville	Hall	1,052	19	56.4	+ 3.5	80	4	26	19	38	1.63	− 1.10	1.04	0.0	3	18	8	4	e.	J. W. Casey.
Glennville	Tattnall		4	60.0		83	4	31	19	38	1.23		0.46	0.0	5	21	8	1	e.	Wm. C. Barnard.
Gore	Chattooga		11	56.2	+ 6.8	80	4†	23	19	42	1.34	− 1.95	0.77	0.0	3	21	3	6	s.	H. M. Ponder.
Greensboro	Greene	598	7	56.8		79	4	28	19	36	1.89		0.92	0.0	4				e.	R. L. Caldwell.
Griffin	Spalding	975	20	58.3	+ 5.3	80	4	29	19	34	1.05	− 1.40	0.60	0.0	3				nw.	V. P. Enloe.
Harrison	Washington	245	11	58.1	+ 3.2	84	4†	23	19	46	0.79	− 1.98	0.69	0.0	3	28	1	1	w.	A. W. J. Wood.
Hartwell	Hart	838	1	57.8		83	4	27	19	38	1.81		1.81	0.0	1	29	1	0	sw.	Dr. W. I. Hailey.
Hawkinsville	Pulaski	235	14	59.4	+ 6.1	87	4	25	19	48	1.24	− 1.23	1.20	0.0	2	18	5	7	nw.	R. H. Wood.
Helena	Telfair	260	2	61.6		86	4	25	19	39	0.38		0.22	0.0	4	6	21	3	e.	James D. Smith.
LaFayette	Walker	871	3	53.6		79	4	25	20	43	1.07		0.70	0.0	2	25	2	3	w.	Ralph A. Snow.
Lisbon	Lincoln		3	57.0		85	4	25	19	45	0.97		0.65	0.0	3	26	2	2		B. J. DuBose.
Lost Mountain	Cobb		9	56.7		79	10	24	19	33	1.60		1.10	0.0	2	9	20	1	e.	A. N. Mayes.
Louisville	Jefferson	259	17	58.8	+ 3.8	80	6	28	19	34	0.73	− 1.58	0.68	0.0	2	25	5	0		J. C. Little.
Lumber City	Telfair		1								0.50		0.22	0.0	5				e.	Walter A. Hilton.
Lumpkin	Stewart	650	16	63.9	+ 6.4	87	4	33	25	36	1.27	− 1.23	1.27	0.0	1	18	12	0	se.	A. W. Latimer.
Macon	Bibb	370	32	59.0	+ 4.4	84	4	28	19	40	0.61	− 2.41	0.46	0.0	3	21	5	4	ne.	U. S. Weather Bureau.
Marshallville	Macon	500	17	60.8[b]	+ 4.2	88	4	23	19	48	0.67	− 2.30	0.44	0.0	3	15	11	4	e.	E. C. Bryan.
Mauzy	Colquitt		11	63.9	+ 5.1	89	5†	28	19	46	0.54	− 1.57	0.54	0.0	1	26	4	0	e.	T. J. Hudson.

TABLE 1.—*Climatological data for November, 1909. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Georgia—Cont'd.																				
Milledgeville	Baldwin	276	21	57.3[a]	+ 3.8	82	7	24	19	38	0.68	− 1.68	0.48	0.0	4	18	5	7	nw.	Prof. O. M. Cone.
Millen	Jenkins	158	22	58.3	+ 3.1	86	6	29	19	48	0.70	− 1.34	0.55	0.0	2	.....	.....	.....	ne.	M. G. McComb.
Montezuma	Macon	292	4	.....	.....	.....	.....	.....	.....	.....	1.12	.....	1.12	0.0	1	.....	.....	.....	nw.	W. N. Drewry.
Monticello	Jasper	800	13	59.4	+ 4.4	82	4	27	19	38	0.76	− 1.89	0.43	0.0	3	.....	.....	.....	.....	Miss Maud C. Penn.
Morgan	Calhoun	337	17	60.3	+ 4.2	84	4	30	18†	41	0.05	− 2.96	0.05	0.0	1	.....	.....	.....	.....	J. J. Beck.
Newnan	Coweta	959	21	60.4	+ 8.2	89	5	26	19	49	1.23	− 1.71	0.68	0.0	2	.....	.....	.....	e.	Mrs. I. J. Milner.
Oakdale	Fulton	810	9	.....	.....	.....	.....	.....	.....	.....	1.30	.....	0.92	0.0	3	.....	.....	.....	e.	W. R. B. Whittier.
Point Peter	Oglethorpe	1,000	20	56.0[a]	+ 5.0	83	4	28	19†	41	1.40	− 1.53	0.95	0.0	2	20	8	2	se.	C. M. Witcher.
Poulan	Worth	365	18	61.1	+ 4.3	89	4	25	19	44	0.44	− 1.94	0.26	0.0	3	28	2	0	.....	Dr. J. F. Wilson.
Putnam	Marion	.....	10	61.2[b]	+ 4.4	89	6	25	19	44	1.60	− 1.01	1.60	0.0	1	.....	.....	.....	s.	Mrs. J. M. Collum.
Quitman	Brooks	173	25	65.4	+ 6.3	92	4†	26	19	51	0.70	− 1.49	0.70	0.0	1	.....	.....	.....	nw.	A. B. Jones.
Ramsey	Murray	1,363	16	58.7	+ 6.8	77	4†	28	19	36	1.18	− 2.05	0.64	0.0	2	24	2	4	s.	D. E. Humphreys.
Resaca	Gordon	657	16	.....	.....	.....	.....	.....	.....	.....	0.86	− 2.44	0.56	0.0	2	.....	.....	.....	se.	D. A. Norton.
Rome	Floyd	576	54	55.2	+ 4.0	82	4	25	19	46	1.12	− 2.30	0.62	0.0	3	.....	.....	.....	w.	W. M. Towers.
St. George	Charlton	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Harris.
St. Mary's	Camden	20	18	63.2	+ 3.3	85	4	38	25	38	1.69	− 0.35	0.44	0.0	9	16	10	4	ne.	David C. Sterling.
Savannah	Chatham	65	59	62.6	+ 4.4	84	4	38	19	27	0.11	− 2.05	0.05	0.0	3	14	14	2	ne.	U. S. Weather Bureau.
Statesboro	Bulloch	253	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. C. Cromley.
Talbotton	Talbot	750	16	62.0	+ 7.5	89	3	27	19	41	0.81	− 2.06	0.30	0.0	3	25	2	3	e.	Dr. W. T. Dennis.
Tallapoosa	Haralson	1,150	11	58.4	+ 6.6	88	4	24	19†	50	2.18	− 0.96	2.10	0.0	2	.....	.....	.....	e.	R. M. Strickland.
Thomasville	Thomas	273	26	62.5	+ 3.3	86	4	28	19	41	1.39	− 1.14	1.36	0.0	2	14	10	6	e.	U. S. Weather Bureau.
Toccoa	Stephens	1,050	24	55.8	+ 5.6	81	4	26	19	37	1.61	− 1.59	0.91	0.0	3	.....	.....	.....	w.	E. A. Newton.
Valdosta	Lowndes	219	4	63.2	.....	89	5†	26	19	49	0.20	.....	0.20	0.0	1	.....	.....	.....	w.	Miss Annie L. Twitty.
Valona	McIntosh	10	9	62.4	.....	85	4	24	26	42	0.90	.....	0.70	0.0	3	24	6	0	ne.	J. M. Atwood.
Washington	Wilkes	630	22	57.6	+ 5.0	81	4	29	19	39	1.40	− 1.47	0.88	0.0	4	.....	.....	.....	ne.	Miss Ella B. Smith.
Waycross	Ware	131	20	62.6	+ 3.0	89	8†	27	19	46	1.02	− 0.44	0.85	0.0	4	.....	.....	.....	ne.	Thos. Sasser.
Waynesboro	Burke	86	18	58.2	+ 3.6	84	3	28	20	38	0.29	− 1.53	0.27	0.0	2	.....	.....	.....	e.	Mrs. H. W. Blount.
West Point	Troup	620	21	57.2	+ 3.2	81	4	29	19	44	1.54	− 1.43	1.20	0.0	3	.....	.....	.....	e.	E. N. Dunn.
Woodbury	Meriwether	641	9	56.2[b]	.....	80	5	28	19	40	1.35	.....	0.65	0.0	3	.....	.....	.....	ne.	G. A. Wright.
Alabama.																				
Alaga	Houston	105	4	.....	.....	.....	.....	.....	.....	.....	0.10	.....	0.06	0.0	2	19	5	6	n.	James L. Willis.
Anniston	Calhoun	741	18	59.0	+ 7.1	82	4	27	19	37	1.69	− 1.71	1.00	0.0	4	18	6	6	se.	U. S. Weather Bureau.
Ashville	St. Clair	685	16	55.8[d]	+ 4.3	84	9	23[h]	19	45[h]	1.44	− 1.28	0.73	0.0	4	19	5	6	sw.	George R. Cather.
Auburn	Lee	732	20	61.6	+ 7.2	85	4	30	19	36	2.36	− 1.40	1.36	0.0	3	17	11	2	se.	James T. Anderson.
Benton	Lowndes	149	8	.....	.....	.....	.....	.....	.....	.....	0.96	.....	0.46	0.0	3	24	5	1	ne.	S. T. Pruitt.
Bermuda	Conecuh	.....	22	60.3[b]	+ 3.9	84[a]	1	26[b]	19	42[b]	1.33	− 1.71	1.15	0.0	4	22	6	2	nw.	M. J. Morris.
Birmingham	Jefferson	700	21	61.4	+ 7.8	82	5	31	18	31	1.05	− 2.34	0.54	0.0	3	11	15	4	s.	U. S. Weather Bureau.
Boligee	Greene	119	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Guy P. Brugh.
Calera	Shelby	500	8	.....	.....	.....	.....	.....	.....	.....	1.02	.....	0.52	0.0	2	28	1	1	e.	L. G. Privett.
Camp Hill	Tallapoosa	738	8	60.7	.....	89	1	28	19	44	1.48	.....	0.64	0.0	3	15	14	1	sw.	Dr. Lyman Ward.
Cedar Bluff	Cherokee	594	5	.....	.....	.....	.....	.....	.....	.....	0.99	.....	0.55	0.0	2	27	3	0	.....	Joe L. Daniel.
Citronelle	Mobile	331	21	63.4	+ 3.7	83	4†	33	19	31	0.81	− 2.21	0.40	0.0	9	25	4	1	s.	George A. Maloney.
Clanton	Chilton	590	16	58.9	+ 4.8	84	4†	26	19	41	1.65	− 1.29	0.90	0.0	3	17	1	12	se.	Wallace C. Edler.
Cordova	Walker	334	15	57.6	+ 6.2	85	4	23	19	45	0.35	− 2.59	0.45	0.0	3	20	7	3	s.	Scott Maxwell.
Cullman	Cullman	802	2	58.0	.....	84	4	23	19	46	1.31	.....	0.72	0.0	6	20	7	3	e.	Eugene A. Grayot.
Dadeville	Tallapoosa	760	4	.....	.....	.....	.....	.....	.....	.....	2.28	.....	0.86	0.0	3	17	8	5	e.	Dr. W. B. Fulton.
Daphne	Baldwin	.....	18	65.1	+ 5.6	83	1†	37	18†	30	0.68	− 2.00	0.26	0.0	4	22	3	5	nw.	John H. Young.
Demopolis	Marengo	.....	17	.....	.....	.....	.....	.....	.....	.....	1.08	− 1.26	0.60	0.0	2	27	2	1	sw.	George E. Pegram.
Double Springs	Winston	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Charles D. Hudgins.
Eufaula	Barbour	200	25	57.4	+ 1.7	81	4	25	19	44	0.34	− 2.55	0.26	0.0	2	22	4	4	nw.	Dr. J. B. Whitlock.
Evergreen	Conecuh	285	25	65.4	+ 9.3	90	7†	28	18	50	1.02	− 2.29	1.02	0.0	1	21	0	9	n.	Robert L. Whitcomb.
Fayette	Fayette	359	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. V. Burns.
Flomaton	Escambia	91	7	61.6	.....	85	5†	32	19†	46	0.55	.....	0.30	0.0	3	27	1	2	n.	T. J. Farris.
Fort Deposit	Lowndes	520	25	60.8[a]	+ 5.1	82[a]	4	30	19	46[a]	1.13	− 1.79	0.63	0.0	3	21	0	9	s.	J. L. Parish.
Gadsden	Etowah	621	15	58.9	+ 7.6	84	4	26	19	40	1.02	− 2.15	0.52	0.0	2	24	0	6	ne.	D. P. Goodhue.
Goodwater	Coosa	826	23	57.0	+ 2.8	82	4†	25	19	44	1.20	− 1.89	1.10	0.0	2	24	0	6	nw.	D. S. Brown.
Greensboro	Hale	220	30	60.8	+ 5.5	80	1†	29	19	33	0.72	− 2.90	0.40	0.0	2	26	1	3	s.	W. E. W. Yerby.
Greenville	Butler	444	8	.....	.....	.....	.....	.....	.....	.....	0.53	.....	0.39	0.0	2	27	0	3	se.	E. M. Lewis.
Hamilton	Marion	.....	13	60.0[a]	+ 7.4	87[a]	4	23[a]	19	49[a]	1.08	− 2.40	0.53	0.0	5	29	0	1	n.	Prof. H. O. Sargent.
Highland Home	Crenshaw	.....	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.0	.....	.....	.....	.....	.....	Prof. Samuel Jordan.
Livingston	Sumter	160	25	57.4	+ 3.6	80	1†	26	19	43	1.25	− 1.63	0.64	0.0	3	24	0	6	e.	Robert L. King.
Lock No 4	Talladega	510	12	58.2	+ 6.4	84	4	24	19	41	0.87	− 2.02	0.45	0.0	2	27	1	2	n.	U. S. Engineers.
Lucy	Houston	.....	4	60.9	.....	88	4†	22	19	56	0.26	.....	0.24	0.0	2	18	12	0	.....	A. L. Crosby.
Maple Grove	Cherokee	.....	16	55.9	+ 5.4	85	4	24	18	44	1.13	− 2.11	0.58	0.0	2	20	9	1	nw.	Mrs. A. L. Awbrey.
Mentone	De Kalb	1,595	2	.....	.....	.....	.....	.....	.....	.....	0.92	.....	0.80	0.0	2	25	1	4	se.	E. Mason.
Milstead	Macon	.....	6	.....	.....	.....	.....	.....	.....	.....	1.84	.....	1.28	0.0	3	20	6	4	e.	Evie Oswalt.
Mobile	Mobile	57	37	64.6	+ 7.1	82	2	36	19	30	0.50	− 3.24	0.24	0.0	7	21	8	1	n.	U. S. Weather Bureau.
Montgomery	Montgomery	223	37	61.5	+ 5.8	84	5	30	19	36	0.92	− 2.21	0.40	0.0	6	21	7	2	e.	U. S. Weather Bureau.
Newbern	Hale	.....	16	62.6	+ 7.3	89	5	28	19	41	1.23	− 1.36	0.66	0.0	3	25	4	1	se.	Dr. J. Huggins.
Oneonta	Blount	857	15	56.6	+ 6.2	81	4†	19	19	41	1.82	− 0.97	0.97	0.0	5	21	2	7	s.	Aquilla J. Ketchum.
Opelika	Lee	817	30	60.8	+ 6.3	84	4†	32	19†	35	1.63	− 1.56	0.80	0.0	3	20	5	5	e.	A. H. Read, Jr.
Ozark	Dale	400	7	62.4	.....	86	12	31	19	48	T.	.....	T.	0.0	0	30	0	0	n.	Miss Lucy Sellers.
Prattville	Autauga	381	9	58.8	.....	83	4	21	25	48	1.92	.....	1.47	0.0	3	23	5	2	n.	Jos. B. Bell.
Pushmataha	Choctaw	.....	18	57.4	+ 2.3	84	4	29	20	45	0.96	− 1.95	0.43	0.0	5	23	5	2	nw.	E. A. Carr.
Selma	Dallas	147	29	59.0	+ 3.8	88	12	26	19	47	1.34	− 1.80	0.70	0.0	4	18	9	3	e.	Charles F. Brislin.
Spring Hill	Mobile	312	5	65.2	.....	86	4	34	19	33	0.20	.....	0.15	0.0	3	24	6	0	s.	Rev. J. B. Franckhauser.
Talladega	Talladega	554	19	59.0	+ 6.1	85	5	22	19	43	2.01	− 0.97	1.20	0.0	3	16	12	2	n.	Ross Bartholomew.
Tallassee	Elmore	.....	18	.....	.....	.....	.....	.....	.....	.....	1.67	− 1.26	0.77	0.0	3	16	1	13	n.	P. A. Noble.
Thomasville	Clarke	385	18	59.4	+ 3.8	84	5†	26	19	41	2.76	+ 0.46	2.06	0.0	3	20	5	5	e.	J. G. Forster.
Troy	Pike	552	1	63.5	.....	86	5	33	24	38	0.35	.....	0.20	0.0	3	25	5	0	se.	C. S. Tutwiler.
Tuscaloosa	Tuscaloosa	230	28	58.1	+ 5.3	83	4	28	19†	49	0.90	− 2.16	0.54	0.0	2	23	2	3	s.	W. S. Wyman.
Tuskegee	Macon	.....	9	63.0	.....	86	5†	33	24	42	2.16	.....	1.68	0.0	3	16	13	1	n.	Prof. Geo. W. Carver.
Union Springs	Bullock	216	22	60.2	+ 5.1	81	1†	32	24	32	1.54	− 1.87	0.80	0.0	4	21	9	0	e.	P. L. Cowan.
Uniontown	Perry	273	23	61.4	+ 5.6	87	4	27	19	39	1.02	− 1.86	0.62	0.0	3	17	13	0	se.	F. D. Stevens.
Valley Head	De Kalb	1,031	24	.....	.....	.....	.....	22	19	.....	1.10	− 2.21	0.65	0.0	2	.....	.....	.....	.....	Dr. E. P. Nicholson.
Vienna	Pickens	590	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. L. Boone.
Wetumpka	Elmore	205	17	62.2	+ 6.4	86	2†	28	19	47	2.11	− 0.93	1.68	0.0	3	23	0	7	n.	U. S. Engineers.
Florida.																				
Apalachicola	Franklin	24	5	65.0	.....	86	4	40	24	30	1.15	.....	0.83	0.0	2	25	5	0	se.	G. A. Whiteside.
Arcadia	DeSoto	61	8	67.9	.....	88	5	39	26	44	0.13	.....	0.13	0.0	1	25	4	1	e.	C. S. Bushnell.
Archer	Alachua	92	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. B. Hodgson.
Avon Park	DeSoto	150	11	68.9	+ 0.8	87	2†	44	25†	37	0.96	− 0.95	0.64	0.0	5	25	4	1	ne.	O. R. Thacher.
Bartow	Polk	115	13	66.4	− 0.8	88	5	37	26	41	0.80	− 0.95	0.35	0.0	6	22	8	0	ne.	Wm. Hood.
Blountstown	Calhoun	.....	2	.....	.....	.....	.....	.....	.....	.....	0.51	.....	0.33	0.0	2	.....	.....	.....	se.	C. L. Hobbs.
Bonifay	Holmes	111	8	62.6	.....	86	5†	29	19	45	0.77	.....	0.56	0.0	2	17	9	4	s.	Wm. Rush.
Brooksville	Hernando	126	17	68.0	+ 2.2	90	5†	40	25	34	0.98	− 0.61	0.98	0.0	1	22	3	5	ne.	C. C. Peck.
Carrabelle	Franklin	10	13	67.4[f]	+ 5.0	84[f]	5†	36[f]	24	28	1.70	− 0.34	1.20	0.0	2	.....	.....	.....	.....	J. J. Blomquist.

TABLE 1.—*Climatological data for November, 1909. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Florida—Cont'd.																			
Cedar Keys	Levy	10	12	67.8	+ 4.6	91	13	43	24	26	0.00	− 2.33	0.00	0.0	0	30	0	0	nw.	J. B. Lutterloh.
Clermont	Lake	105	16	68.7	+ 0.9	89	5	45	24†	35	1.05	− 0.10	0.60	0.0	3	14	16	0	e.	S. S. Fesler.
DeFuniak Springs	Walton	193	14			85[e]	16				0.45	− 3.40	0.35	0.0	2					R. W. Storrs.
DeLand	Volusia	27	13	64.6	− 0.1	87	5	34	25	42	1.07		0.67	0.0	7	16	11	3	e.	O. B. Webster.
Eustis	Lake	56	17	66.0	+ 0.3	90	5	40	25†	40	0.73	− 0.71	0.33	0.0	4	20	10	0	ne.	C. T. Smith.
Federal Point	Putnam	5	17	65.8	+ 1.8	88	2	39	25	40	1.15	− 1.03	0.42	0.0	8	21	9	0	e.	E. S. Hubbard.
Fenholloway	Taylor	75	3																	J. Wigglesworth.
Fernandina	Nassau	10	12	66.2	+ 3.4	86	4	43	24	33	3.27	+ 0.75	1.33	0.0	8	19	2	9	ne.	W. B. C. Duryee.
Flamingo	Monroe	4	7																	E. R. Bradley.
Fort Meade	Polk	125	17	67.4	+ 0.8	90	5	37	26	43	0.39	− 1.07	0.25	0.0	2	23	5	2	ne.	G. L. Brodrick.
Fort Myers	Lee	12	17	68.6	− 1.2	82	1†	48	26†	27	0.38	− 0.91	0.23	0.0	2	24	6	0	e.	M. M. Gardner.
Fort Pierce	St. Lucie	6	8	70.0		82	1†	49	25	29	2.93		0.69	0.0	9	9	8	13	ne.	R. L. Goodwin.
Gainesville	Alachua	176	23	65.6[b]	+ 3.1	88[c]	5	38	25	41	0.30	− 1.80	0.18	0.0	2	25	2	3	ne.	J. P. H. Bell.
Grasmere	Orange	175	13	66.4	+ 0.3	88	5	40	25†	37	1.32		0.69	0.0	7	24	5	1	ne.	J. B. Escott.
Hilliard	Nassau	69	1	62.9		85	4†	30	25	44	1.42		0.54	0.0	6					D. W. Griffing.
Huntington	Putnam	56	12	65.0	+ 0.8	89	5	36	25	42	1.60	− 0.09	1.03	0.0	8	26	2	2	se.	E. C. Walker.
Hypoluxo	Palm Beach	4	9	73.0		85	23	54	25	26	0.32		0.27	0.0	3	29	0	1	ne.	G. A. Angervine.
Inverness	Citrus	43	8	63.6		85	5	35	25†	42	0.22	− 1.22	0.12	0.0	2	14	14	2	ne.	W. H. Miller.
Jacksonville	Duval	101	37	64.8	+ 3.5	84	4	40	24	29	0.99	− 1.20	0.41	0.0	9	15	13	2	ne.	U. S. Weather Bureau.
Jasper	Hamilton	152	11					30	19		0.40	− 1.10	0.40	0.0	1				ne.	G. W. Duncan.
Johnstown	Bradford	125	14	63.4	+ 3.5	90	5	30	19	47	1.15	− 0.38	0.59	0.0	5					A. M. C. Brasch.
Jupiter	Palm Beach	34	21	72.0	+ 0.4	82	17	51	25	22	0.98	− 2.07	0.50	0.0	10	7	22	1	e.	U. S. Weather Bureau.
Key West	Monroe	14	38	73.4	− 0.9	82	23	62	26	13	0.06	− 2.36	0.06	0.0	1	21	8	1	ne.	U. S. Weather Bureau.
Kissimee	Osceola	65	17	67.6	+ 0.3	84	2†	42	26	33	1.49	− 0.41	0.68	0.0	3	20	7	3	ne.	J. A. Simpson.
Lake City	Columbia	210	20	65.2	+ 3.5	90	5	34	25	45	0.50	− 1.80	0.30	0.0	2	17	10	3	ne.	W. B. Knight.
Live Oak	Suwanee	109	8																	D. O. Henry.
Macclenny	Baker	125	13	62.4	− 0.1	87[c]	4†	31[c]	19	46	0.88	− 0.64	0.75	0.0	3				ne.	Griffing Bros. Co.
Madison	Madison	200	6	64.6		88	4†	35	19†	39	0.27	− 0.48	0.24	0.0	2	9	5	16	e.	E. J. Vann.
Malabar	Brevard	24	8	70.9		87	6	44	25	35	1.28		0.55	0.0	7	23	7	0	e.	J. F. Farley.
Manatee	Manatee	8	17	68.4	+ 1.3	85	6	40	30	34	0.56	− 1.06	0.50	0.0	2	14	16	0	e.	F. C. Whitaker.
Marianna	Jackson	80	9																	J. L. Behymer.
Merritt's Island	Brevard	20	30	69.9	+ 1.4	82	6	46	25	26	0.81	− 1.49	0.40	0.0	5	21	5	4	e.	C. D. Provost.
Miami	Dade	5	13	73.1		85	3	50	25	28	0.60		0.60	0.0	1	26	4	0	e.	E. V. Blackman.
Middleburg	Clay	10	8	63.7[c]		89[c]	5	34[c]	26	45	1.88		1.35	0.0	4					G. A. Chalker.
Molino	Escambia	49	8	61.0		85	7	27	19	46	1.62		0.65	0.0	4	28	2	0	s.	W. H. Trimmer.
Monticello	Jefferson	207	4	65.5[c]		86[c]	13	36[c]	19†	41	0.45		0.45	0.0	1	27	1	2	n.	E. C. Potter.
Mt. Pleasant	Gadsden	260	5	62.8		88	4	29	19	45	0.48		0.30	0.0	2					Miss A. Grubb.
Newport	Wakulla		8			86	5†				T.		T.	0.0	0	30	0	0		J. W. Ladd.
New Smyrna	Volusia	9	21	67.8	+ 1.8	85	17	42	25	34	2.08	− 0.72	1.25	0.0	6					F. Nordman.
Ocala	Marion	98	22	65.4	+ 1.2	89	5†	35	26	47	0.45	− 1.16	0.21	0.0	4	25	4	1		F. T. Schreiber.
Orange City	Volusia	39	19					34	25†		2.89	+ 1.22	1.73	0.0	4	25	3	2	e.	J. D. Graham.
Orlando	Orange	111	17	67.0	+ 0.4	86	5	40	25	40	0.65	− 0.79	0.30	0.0	5	10	14	6	e.	James Thomson.
Pensacola	Escambia	149	31	64.4	+ 4.8	80	6	38	24	27	0.88	− 2.86	0.40	0.0	3	19	9	2	ne.	U. S. Weather Bureau.
Plant City	Hillsboro	121	17	66.2	− 0.3	85	5	40	25†	34	0.52	− 0.88	0.52	0.0	1					E. B. Trask.
Rockledge	Brevard	28	1	69.0		87	1	46	25	30	1.19		0.39	0.0	6	23	5	2	ne.	J. H. White.
Rockwell	Marion	10	10	64.8[d]		88[d]	4	35[d]	25	44	0.00		0.00	0.0	0				se.	Dunellon Phos. Co.
St. Andrew	Huntington	14	14	62.2	+ 2.6	80	1†	32	19	34	0.46	− 2.96	0.31	0.0	2	29	1	0	e.	W. A. Emmons.
St. Augustine	St. Johns	10	59	66.0	+ 1.9	84	6	42	24	30	3.36	+ 1.14	1.56	0.0	5	20	5	5	ne.	J. R. Palmer.
Sand Key	Monroe	46	6																	U. S. Weather Bureau.
St. Leo	Pasco	140	14	67.0	+ 0.7	87	5	42	26	32	0.61	− 1.01	0.49	0.0	2	19	9	2	ne.	G. Schneider.
Satsuma Heights	Putnam	98	1	63.4		85	5	35	25	37	1.29		0.77	0.0	7	11	18	1	ne.	Satsuma Co.
Switzerland	St. Johns	10	13	65.0[a]	+ 3.1	87[a]	5	39[b]	25†	35	0.67	− 1.61	0.18	0.0	5					W. C. Steele.
Tallahassee	Leon	192	24	63.6	+ 4.1	84	4	36	19†	33	0.48	− 2.06	0.38	0.0	2	19	11	0	e.	W. H. Markham.
Tampa	Hillsboro	79	19	67.6	+ 2.2	86	5	46	19	29	0.56	− 1.16	0.51	0.0	4	19	10	1	ne.	U. S. Weather Bureau.
Tarpon Springs	Hillsboro	20	16	67.4	+ 0.8	88	6†	41	25†	37	0.23	− 1.56	0.23	0.0	1	24	6	0	e.	A. P. Albaugh.
Titusville	Brevard	6	17					43	26		0.89	− 1.87	0.40	0.0	7	14	7	9	e.	F. M. Taylor.
Wausau	Washington	250	12					29	18†		0.08	− 4.23	0.08	0.0	1	25	5	0	s.	C. Jones.
Mississippi.																				
Aberdeen	Monroe	210	21	60.2	+ 9.2	86	5	26	19	46	0.87	− 2.18	0.82	0.0	2	22	2	6	s.	L. D. Godfrey, jr.
Agricultural College	Oktibbeha	424	19	61.3	+ 7.3	86	4	27	19	42	1.40	− 1.57	0.80	0.0	3	18	11	1	s.	Prof. W. R. Perkins.
Bay St Louis	Hancock	28	16	64.2	+ 4.1	85	2	38	25	31	0.95	− 2.00	0.28	0.0	6	22	4	4	e.	Brother Stanislaus.
Biloxi	Harrison	24	18	65.9	+ 6.1	87	2	37	19	31	2.20	− 0.70	1.88	0.0	6	24	5	1	se.	Miss M. Josie Pope.
Booneville	Prentiss	504	15	59.4	+ 7.6	79	4†	28	18†	32	2.09	− 1.68	0.72	0.0	5	20	9	1	sw.	Dr. D. T. Price.
Brookhaven	Lincoln	500	21	61.8	+ 5.2	86	4	28	19	46	0.81	− 3.10	0.30	0.0	4	18	1	11	e.	W. J. Bee.
Columbia	Maroon	100	5								0.61		0.26	0.0	4	20	4	6	s.	N. R. Drummond.
Columbus	Lowndes	250	21	60.0	+ 6.5	88	4	26	19	45	1.47	− 2.94	0.46	0.0	6	21	0	9	se.	J. B. Love.
Crystal Springs	Copiah	468	17	61.6	+ 5.0	83	5	28	19	36	1.16	− 1.83	0.65	0.0	5	27	3	0		D. H. Miller.
Edinburg	Leake		1	59.3[a]		85[a]	4	23[a]	19	45[a]	1.51		0.72	0.0	5	18	8	3	s.	J. Y. Blocker.
Enterprise	Clarke	248	4								0.79		0.34	0.0	5	17	6	7	n.	J. B. Thompson.
Fulton	Itawamba										2.16		1.04	0.0	6	18	5	7	s.	A. L. Summers.
Hattiesburg	Forest	154	16	62.3	+ 4.7	86	1†	28	19	44	1.44	− 1.67	0.64	0.0	5	18	2	10	s.	T. C. Spence.
Hazlehurst	Copiah	460	19	61.4[b]	+ 4.5	85[b]	1†	25[a]	18	47[b]	1.54	− 1.52	0.87	0.0	3	17	2	11	s.	J. D. Granberry.
Jackson	Hinds	280	22	62.6	+ 7.6	88	4	25	19	47	1.06	− 2.45	0.58	0.0	8	19	10	1	se.	Frank J. Heintz.
Lake	Scott	446	21	58.4	+ 5.3	85	4	21	19	47	0.75	− 1.99	0.40	0.0	3	23	1	6	s.	J. A. Freeman.
Lake Como	Jasper		6	59.0		82	9†	25	19	50	1.79		0.90	0.0	4	13	17	0	s.	C. Thigpen.
Laurel	Jones	241	5	62.8		87	4	26	19	45	1.56		0.51	0.0	5	22	7	1	se.	Thos. W. Flynt.
Leakesville	Greene		15	62.2[a]	+ 3.9	88[a]	4	26[a]	19	47[a]	0.20	− 2.81	0.20	0.0	1	20	5	3		Dr. Samuel Pool.
Louisville	Winston	561	20	61.7	+ 7.3	86	4	25	19	43	1.18	− 1.72	0.50	0.0	4					B. T. Webster.
McNeill	Pearl River	185	21	63.5		84	4	31	19	35	1.01		0.45	0.0	5	20	6	3	se.	Finis E. Carleton.
Macon	Noxubee	230	6	58.8	+ 4.6	86	4	25	19	47	0.96		0.65	0.0	3	19	5	6	se.	Prof. E. B. Ferris.
Magnolia	Pike	415	13	63.4	+ 5.2	84	4	28	19	40	1.49	− 1.48	0.62	0.0	4	9	16	5	e.	Miss Ruby V. Roberts.
Meridian	Lauderdale	375	19	59.8	+ 6.6	82	4	27	19	38	0.71	− 3.43	0.44	0.0	3	16	11	3	s.	U. S. Weather Bureau.
Merrill	Greene	76	4								0.22		0.12	0.0	2	20	6	4	n.	L. C. Helms.
Monticello	Lawrence	209	2	60.2		84	1†	29	18†	49	1.01		0.58	0.0	9	19	9	2	se.	Dr. G. A. Teunisson.
Okolona	Chickasaw	311	21	59.8	+ 7.8	87	4	26	19	43	0.90	− 2.10	0.40	0.0	3	23	2	5	s.	D. H. Shell.
Pascagoula[d]	Jackson	15	...	63.0		83	7	34	19	41	0.74		0.74	0.0	1	21	8	1	s.	Tom Swartwout.
Pearlington	Hancock	10	21	62.6	+ 3.4	82	1†	33	19	35	2.16	− 1.00	0.59	0.0	5	10	13	7	e.	Miss Annette Koch.
Porterville	Kemper		4	60.2		84	4	25	19	43	1.07		0.77	0.0	3	17	10	3	se.	W. G. Sanders.
Shubuta	Clarke	201	4								0.92		0.30	0.0	7	18	5	7	e.	Geo. A. Floyd.
Waynesboro	Wayne	191	22	58.8	+ 3.7	85	3	24	19	49	1.08	− 1.78	0.42	0.0	5	14	5	11	n.	R. S. Burke.
Woodland	Chickasaw										0.94		0.44	0.0	4					Tallahatchie Drain. Com.
Louisiana.																				
Pearl River	St. Tammany		4								1.42		0.62	0.0	5	21	3	6	w.	Geo. F. Bancks.

TABLE 2.—*Daily precipitation for November, 1909. District No. 2, South Atlantic and east Gulf States.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Virginia.																																	
Arvonia	James						.04			.16								.02						.65	.04							0.91
Ashland	...do		T.					.14										T.						.88	T.							1.02
Buchanan‖	...do									.09	T.													.32								0.41
Callaville	Chowan						.02						.08			.12	.12								.60							0.94
Cape Henry	Coast		.01	.27			.01			T.								.03						.08	.08	.01						0.49
Charlottesville	James						.12			.26	.12				T.	T.								.10	T.							0.60
Clarkesville‖	Roanoke			.35														.10						.05								0.50
Columbia	James							.10		.20					.02		T.							.91	.05							1.28
Danville‖	Roanoke									.04								.08	T.					.05	.04							0.21
Diamond Springs	Coast		.15																													
Dinwiddie	Chowan																															
Hampton	Coast			.37																				.35	.05							0.77
Hot Springs‖	James						.02			.48	.30								.17					.12								1.09
Ivor	Chowan			.10																				.60	.20							0.90
Lexington	James						.02			.64	.05							.02	T.				.24									0.97
Lynchburg	...do	T.							T.	.15	.02				T.			.01						.33	.01							0.52
Newcastle‖	...do								.09														.07									0.16
Newport News	Coast		.44	.01		T.				T.								.02						.48	.12	.03				T.		1.10
Norfolk	...do		T.	.07		T.				T.						T.		.08						.28	.09					T.		0.52
Petersburg	James																															
Randolph‖	Roanoke																	.10						.03								0.13
Richmond	James		.07			T.	.02			T.						T.		.02						.48	.03					T.		0.62
Rockymount	Roanoke																							.22								0.22
Sabot	James						.04											.06						.57	.04							0.71
Saxe	Roanoke			.30																				1.24								1.54
Spottsville (near)	Chowan		.16															T.						.50	.04					T.		0.70
Williamsburg	James						.05											.05					.25		T.					T.		0.35
North Carolina.																																
Beaufort	Bogue Sound		.04	.25				1.05				.40	.45											.29	.02					.02		2.52
Belhaven	Pungo			.22																				.68	.28					.05		1.23
Brewers	Pedee																															
Caroleen	Santee		T.														.03	.10						.15								0.28
Chalybeate Springs	Cape Fear																															
Chapel Hill	...do		T.	.05							T.				T.	.02	T.	.10						.36						.02		0.55
Charlotte	Santee		.02						T.	T.	T.					T.	T.	.07						.35								0.44
Chimney Rock	...do																	.01						.06								0.07
Clinton	Cape Fear		.08				.35											T.					T.	.08	T.					T.		0.51
Eagletown	Chowan		T.			T.	.25			T.		T.						.10						.28	.13					.06		0.82
Edenton	Albemarle Sound		.15	.75				.30																.80								2.00
Fayetteville‖	Cape Fear			.04				.04											.12						.01							0.21
Goldsboro‖	Neuse			.12				.08					T.											.10	.11	.01				.03		0.45
Graham‖	Cape Fear																	.07							.08							0.15
Greensboro‖	...do															.05		.25						.05	.10							0.45
Greenville‖	Tar			.19									.50	.02										.05	1.30		.06					2.12
Hatteras	Pamlico Sound		.07	.41		.33	.04				.09							.02					T.	1.05	.23					T.		2.24
Henderson	Tar		.06	.05						T.		T.						T.							.14	.09							0.34
Kinston	Neuse																															
Lenoir	Santee		.03								.57													.28								0.88
Lexington	Pedee										.22							.22						.25	.05							0.74
Lincolnton	Santee										1.00							.30														1.30
Louisburg‖	Tar			T.											T.			T.							.38					T.		0.38
Lumberton‖	Lumber			.40			.02	T.				T.						T.	.01				T.	.01						T.		0.44
Manteo	Roanoke Sound			.32				.14			.02													.32	.42							1.22
Marion	Santee		T.					T.	.46	.10							T.	.12						.19								0.87
Moncure‖	Cape Fear			.04												T.		T.	.03						.10							0.17
Monroe	Pedee		T.															T.						.20								0.20
Morgantown	Santee										.25	T.						.03						.20								0.48
Mount Airy	Pedee		.07								.18							T.						.30								0.55
Mount Holly‖	Santee		T.								.18							.16						.22	.24							0.80
Nashville‖	Tar		T.										.09						.06				T.	.26	.06					.03		0.50
Newbern‖	Neuse			.28			.06				T.		.02	.02				.17						.28	.30					.05		1.01
Pinehurst	Lumber		T.					T.										T.					T.	T.							T.
Pittsboro	Cape Fear																															
Raleigh	Neuse		.03							T.						T.		.02					T.	.05	.01					T.		0.11
Ramseur	Cape Fear																.18															0.18
Randleman‖	...do		.05	.22							.05						T.	.09						T.	.11							0.52
Reidsville‖	...do			.24							.11							.12						.12	.10							0.69
Rockingham	Pedee							1.45																								1.45
Roxboro	Roanoke																															
Salem	Pedee										.75													.28								1.03
Salisbury‖	...do		.37								.55							.15						.11	.15							1.13
Saxon‖	Roanoke									.12							.04	.04					.38									0.58
Scotland Neck	Tar		.02	.14														.05						.26	.40					.03		0.90
Selma	Neuse		.10					.45										.10	.10					.15								0.90
Settle	Pedee		T.							.30							.05						.25									0.60
Sloan	Cape Fear		.35				.35											T.					.31	.14						T.		1.15
Snow Hill	Neuse			.09				.10										.02						.47	.15					.06		0.89
Southern Pines	Cape Fear																	T.						T.	T.							T.
Southport	...do			.16							.03													.22								0.41
Statesville	Pedee									.85						T.	.15							.11								1.11
Tarboro‖	Tar			.07				T.		T.						T.			.03					.17	.78	.11				.05		1.21
Troy	Pedee							1.90										.10						.21								2.21
Weldon‖	Roanoke			.05				.03										.01	.06					T.	.33	.14				T.	.01		0.63
Whiteville	Waccamaw			.20		.13												T.						.10						T.		0.43
Willard	Cape Fear		.13	.50				.52					.03											.52								1.70
Wilmington	...do		.29	.01		T.	T.				.06												.17	.04					T.		0.57
Yanceyville	Roanoke																															
South Carolina.																																
Aiken	Edisto																							.50								0.50
Allendale‖	Savannah																							.50								0.50
Anderson	...do																.05	.27						.48								0.80
Batesburg‖	Edisto			.02				.01										.09						.83								0.95
Beaufort	Coast		.49											.01			T.															0.50
Bennettsville	Pedee																															
Blackville‖	Edisto		.05														T.	.08			T.	.20	.18									0.51
Blairs‖	Broad								.70																.20							0.90
Bowman	Edisto		.45				.18										T.	.07			T.			.26								0.96
Calhoun Falls‖	Savannah																	.35						.71								1.06
Camden (1)	Wateree		T.			T.	.04											.18						.21								0.43
Camden (2)‖	...do																							.08	.12							0.20
Catawba‖	Catawba			.06														.08						.18	.04							0.36
Chappells‖	Saluda		.01						.20															.70								0.91
Charleston	Coast		.24			1.31	.34								.23		.03					.04	.25									2.44
Cheraw (1)‖	Pedee			.27			.38	.54									.03	.10						.05						T.		1.37

TABLE 2.—*Daily precipitation for November, 1909. District No. 2*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
South Carolina—Cont'd.																																	
Cheraw (2)	Pedee																																
Clarks Hill	Savannah																																
Clemson College	do		.13														.04	.42						.53								1.12
Columbia	Congaree		.02					.12									T.	.01						.27								0.42
Conway	Waccamaw			.59																				T.	.22							0.81
Darlington	Pedee			T.				.90	1.12															.05								2.07
Dillon	Little Pedee		.08			*	.29	.32															T.	T.								0.69
Effingham	Lynches			.90				.50											.15								.25					1.80
Ferguson	Santee				.40												T.						.30	.20								0.90
Florence	Pedee			.12				.08											T.					T.						T.		0.20
Georgetown	Coast		T.	.22			T.		.18								T.						T.	.15								0.55
Greenville	Saluda		.12					.28			T.						T.	.50						.40								1.30
Greenwood	do							.07										.11						.78								0.96
Health Springs	Wateree		.28				.01	.02										.19						.13								0.63
Jacksonboro	Combahee							T.						T.			T.						T.									T.
Kingstree (1)	Black			.48				2.00																	.40							2.88
Kingstree (2)	do																															
Liberty	Savannah		.05				T.	.02			T.					T.	.02	.80					.40								1.29
Little Mountain	Saluda		.09				.05	.11								.13								.30								0.68
Newberry	do		.06				.16	1.65	.02	.01	.01				.01	.01	.11						.44									2.48
Pelzer	do							.06									.38							.44								0.88
Pinopolis	Cooper		.46				.90																.14	.40								1.90
St. George	Edisto																							.60								0.60
St. Matthews	Santee							.10																.07	.05							0.22
Saluda	Saluda						T.										.39															0.39
Santuc	Broad							.23		.07							T.	.10						.39								0.79
Smith Mills	Pedee			.96				.10																T.								1.06
Society Hill	do																															
Spartanburg	Broad		.02					.43	.17		.03	.08						.32						.28								1.25
Summerville	Ashley		T.	.93				.03	T.					T.			.08	T.				T.	.13	.35								1.52
Trenton	Edisto		.09				T.											.22						.75								1.06
Trial	Santee		.52														.05	T.				T.		.52								1.09
Walhalla	Savannah	.13						T.															.50									0.63
Walterboro	Ashepoo		.13	.24				T.									.06					T.		.42								0.85
Winnsboro	Broad																															
Winthrop College	Catawba		.05								T.							.11						.34	T.							0.50
Yemassee	Combahee			.30				.04	.05										T.				T.	T.	.44							0.83
Georgia.																																
Abbeville	Ocmulgee													T.				.12						.44								0.56
Adairsville	Coosa		.15															.28						*	.47							0.90
Albany	Flint								*	.02							*	.08						.18								0.28
Allapaha	Allapaha																				*			.47								0.47
Americus	Flint																															
Athens	Oconee		.04															.31					*	1.21								1.56
Atlanta	Chattahoochee	.10							T.		T.			T.			.06	.22					.96	.14								1.48
Augusta	Savannah		.01															T.						.61								0.62
Bainbridge	Flint									T.							*	.12					*	.22								0.34
Barnesville	do		.05															.25						.45								0.75
Blakely	Chattahoochee										T.													.24								0.24
Brunswick	Altamaha																															
Butler	Flint	*	.15																				*	.51								0.66
Camak	Savannah		*	.12														.12						.71								0.95
Canton	Coosa																															
Carlton	Savannah																*	.36						.94								1.30
Carrollton	Chattahoochee																															
Clayton	Savannah							T.	T.		T.			T.			T.	.70						.42								1.12
Columbus	Chattahoochee	*	.38														*	.25					*	.48								1.11
Covington	Ocmulgee	*	.33														.25						*	.99								1.57
Cuthbert	Chattahoochee																.05						.16									0.21
Dahlonega	do	T.	.37														*	.60					*	.77								1.74
Diamond	Tennessee	T.															.02	.55					*	.51								1.08
Douglas	Satilla																															
Dublin	Oconee		*	.52											T.			*	.06					.74								1.32
Dudley	do		.35																					.55								0.90
Eastman	Ocmulgee		*	.06														T.	.03				*	.69								0.78
Eatonton	Oconee		.13															.15						.45								0.73
Elberton	Savannah		.09								T.						.12	.24						.75								1.20
Experiment	Chattahoochee			.12														.14						.60								0.96
Fitzgerald	Allapaha																															
Forsyth	Ocmulgee																							1.32								1.32
Fort Gaines	Chattahoochee																	T.					*	.25								0.25
Gainesville	do	*	.21														*	.36					*	.80								1.37
Gillsville	Oconee		.29															.30						1.04								1.63
Glennville	Altamaha		.31					.46			T.		.10				.03	T.			T.			.33								1.23
Gore	Coosa	.07																.50						.77								1.34
Greensboro	Oconee	*	.48						*	.14								.35					*	.92								1.89
Griffin	Chattahoochee	*	.15						T.		T.						*	.30					*	.60								1.05
Harrison	Ogeechee		.05															.05						.69								0.79
Hartwell	Savannah																							1.81								1.81
Hawkinsville	Ocmulgee													*	T.		T.	.04					*	1.20								1.24
Helena	do			.01										T.	.03			.12						.22								0.38
LaFayette	Tennessee																.37						.70									1.07
Lisbon	Savannah			.07														.25						.65								0.97
Lost Mountain	Chattahoochee		T.															.50						1.10								1.60
Louisville	Ogeechee																	.05						.68								0.73
Lumber City	Ocmulgee							*	.14						*	.08		.04				*	T.	.02	.22							0.50
Lumpkin	Chattahoochee		T.														T.						1.27									1.27
Macon	Ocmulgee		.02				T.				T.			T.			T.	.13						.46								0.61
Marshallville	Flint		.13	T.														.10						.44								0.67
Mauzy	Suwanee																	T.						.54								0.54
Milledgeville	Oconee		*	.09													.02	.09					*	.48								0.68
Millen	Ogeechee		*	.15																			.55									0.70
Montezuma	Flint																						*	1.12								1.12
Monticello	Ocmulgee		.17															.16					*	.43								0.76
Morgan	Flint																						.05									0.05
Newnan	Chattahoochee																	.55					*	.68								1.23
Oakdale	do		.13														*	.25					*	.92								1.30
Point Peter	Savannah	T.						T.										.45						.95								1.40
Poulan	Suwanee								.06									.12						.26								0.44
Putnam	Flint																							1.60								1.60
Quitman	Suwanee																		*	T.				*	.70							0.70
Ramsey	Coosa																	.54						.64								1.18
Resaca	do																.30							*	.56							0.86
Rome	do	*	.10														*	.40						*	.62							1.12

TABLE 2.—*Daily precipitation for November, 1909. District No. 2*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Georgia—Cont'd.																																	
St. George	St. Marys								.08	.34		.18	.44	.13	.21	.03		.03						.25								1.69
St. Marys	do													.01			T.	T.						.05								0.11
Savannah	Savannah		.05																														
Statesboro	Ogeechee																	.23						.28								0.81
Talbotton	Chattahoochee		.30																				*	2.10								2.18
Tallapoosa	Coosa		.08															.03						1.36								1.39
Thomasville	Ochlockonee																	.40					*	.91								1.61
Toccoa	Savannah	*	.30																					*	.20								0.20
Valdosta	Suwanee																							.08									0.90
Valona	Ogeechee								.70								.12																
Washington	Savannah		.22	.10								T.					T.	.20						.88								1.40
Waycross	Satilla								*	.09						*	.07	*	.01					*	.85							1.02
Waynesboro	Savannah																	*	.02					.27								0.29
West Point	Chattahoochee	*	.08															.26					*	1.20								1.54
Woodbury	Flint		.30															.40						.65								1.35
Florida.																																	
Apalachicola	Coast																T.	.83					.32									1.15
Arcadia	Peace Creek								.13																							0.13
Archer	Waccasassa																																
Avon Park	Kissimmee							T.	.03	.02			.23	T.	T.	T.	T.		.04						.64								0.96
Bartow	Peace Creek							.04	.04	.03			.32			.02									.35								0.80
Blountstown	Apalachicola																.16							.33								0.51
Bonifay	Choctawhatchee		T.														.56						.21									0.77
Brooksville	Withlacoochee																							.98								0.98
Carrabelle	Coast		.50															1.20														1.70
Cedar Keys	do																																0.00
Clermont	Lake										.30	.15												.60								1.05
De Funiak Springs	Choctawhatchee										.10							.35					T.									0.45
De Land	St. Johns									.26	.04	.67	.01	T.	T.	.01					T.	.06		T.	.02							1.07
Eustis	Lake									.09	*	.33	.03										.28									0.73
Federal Point	St. Johns							.08	.01	.42	.03		.12	.39		T.			.05					.05								1.15
Fenholloway	Fenholloway																																
Fernandina	Coast								T.		.12	.09	1.33	.93	.02		.18	.08						.52								3.27
Flamingo	do																																
Fort Meade	Peace Creek										T.		.14												.25								0.39
Fort Myers	Caloosahatchee								T.				T.		.23			T.						.15								0.38
Fort Pierce	Indian		T.						.16	.27	.31		.57			.03			T.			.69	.14	.33	.43					T.		2.93
Gainesville	Lake													.12							T.			.18								0.30
Grasmere	do								T.	.11		.02	.67						.02		T.			.50								1.32
Hilliard	Nassau													.35		.05	.01	.11	.54					.36								1.42
Huntington	St. Johns							.08		.25	.01		1.03	.03	.01							.01		.18								1.60
Hypoluxo	Lake												.03												.27					.02		0.32
Iverness	Withlacoochee										.10													.12								0.22
Jacksonville	St. Johns								T.	.32	.09	T.	.07	.01	.25	.01	.03	.07						.14								0.99
Jasper	Suwanee																							.40								0.40
Johnstown	do												.01			.01		.59						.16	.38							1.15
Jupiter	Coast							.01	.50			.01	.01	T.	.07	T.			T.			.09			.15				.04	.01	.09	0.98
Key West	do										.06				T.																	0.06
Kissimmee	Kissimmee							T.	T.	T.	T.	.30	.68	T.											.51								1.49
Lake City	Suwanee								T.									.20						.30								0.50
Live Oak	do																																
Macclenney	St. Marys												.04						.09					.75								0.88
Madison	Suwanee																		.03						.24								0.27
Malabar	Indian								.55		.16		.29					.05			.17	.04	.02										1.28
Manatee	Manatee								.06	T.	T.														.05								0.56
Marianna	Apalachicola																																
Merritts Island	Indian							T.	T.	.05	.02		.21	T.				T.			.13				.40								0.81
Miami	Coast						T.	T.					.60		T.				T.														0.60
Middleburg	St. Johns											.10		.23					.20				1.35										1.88
Molino	Escambia		.65					.35									.38							.24								1.62
Monticello	Aucilla																	T.						.45								0.45
Mount Pleasant	Apalachicola																	.18						.30								0.48
Newport	St. Marks																	T.						T.								T.
New Smyrna	Coast						.06			.54	1.25	.02		T.	.02	T.								.19								2.08
Ocala	St. Johns										.11			.21	T.	.08	T.		T.			.05			T.							0.45
Orange City	do								.16	.62	1.73										.38											2.89
Orlando	do							T.	T.	.08		.07	.09	T.	T.	.11					T.				.30							0.65
Pensacola	Coast	T.	.10											T.	T.		.38						.40									0.88
Plant City	Hillsboro																							.52								0.52
Rockledge	Indian											.31	.13			.15					.12		.09	39								1.19
Rockwell	Withlacoochee																																0.00
St. Andrew	Coast																	.15						.31								0.46
St. Augustine	do								.39	T.	.83	T.	.24	T.			.34		T.				1.56									3.36
Sand Key	do																																
St. Leo	Withlacoochee												.12		T.									.49								0.61
Satsuma Heights	St. Johns							.02	T.	T.	.04	.77	.09	.01						.01				.35								1.29
Switzerland	do									.17	.05		.15						.12				.18									0.67
Tallahassee	Ochlockonee																	.10						.38								0.48
Tampa	Coast							T.	.01	T.		.01	.03						T.					.51								0.56
Tarpon Springs	do								T.				T.											.23								0.23
Titusville	Indian		.02		T.					.07		.03	.26		.05	.06					T.			.40								0.89
Wausau	Choctawhatchee																.08															0.08
Alabama.																																	
Alaga	Chattahoochee								*	.04							*	.06					T.									0.10
Anniston	Coosa	T.															.68	.01				.98	.02									1.69
Ashville	do	.03							T.	.12						T.	T.	.56						.73									1.44
Auburn	Tallapoosa	T.	1.36															.65						.35									2.36
Benton	Alabama		.46															.28						.22									0.96
Bermuda	Escambia	T.	1.15					T.						T.			.08	.05						.05									1.33
Birmingham	Black Warrior																.53	.01				.51								T.			1.05
Boligee	Tombigbee																																
Calera	Coosa																	.52						.50									1.02
Camp Hill	Tallapoosa		.24														.64							.60									1.48
Cedar Bluff	Coosa														.55							.44											0.99
Citronelle	Alabama		.04					.02	.02	.40	.02		.02	T.			.23	.01						.05									0.81
Clanton	Coosa		.05															.70						.90									1.65
Cordova	Black Warrior	.06															.04					.45											0.55
Cullman	do	.03								.01							.71	.01				.54	.01										1.31
Dadeville	Tallapoosa		.84															.58						.86									2.28
Daphne	Coast		.22					T.		.05			.15				T.	.26															0.68
Demopolis	Tombigbee																	.48						.60									1.08
Double Springs	Black Warrior																																
Eufaula	Chattahoochee		T.	T.								T.					T.	.08						.26									0.34
Evergreen	Escambia																	1.02															1.02

TABLE 2.—*Daily precipitation for November, 1909. District No. 2*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Alabama—Cont'd.																																	
Fayette	Tombigbee	.30															.05	.20															0.55
Flomaton	Escambia		0.2															.63						.48									1.13
Fort Deposit‖	...do																	.52						.50									1.02
Gadsden‖	Coosa																	.10						1.10									1.20
Goodwater‖	...do																	.32						.46									0.78
Greensboro‖	Black Warrior																	.39							.14								0.53
Greenville‖	Escambia																	.53						.20									1.08
Hamilton	Tombigbee	.04								.26					.05																		
Highland Home	Escambia															.09		.64						.52									1.25
Livingston‖	Tombigbee																	.42						.45									0.87
Lock No 4‖	Coosa		T.															.24						.02									0.26
Lucy	Chattahoochee	T.															.55						.58									1.13
Maple Grove	Coosa																	.12					T.		.80								0.92
Mentone‖	...do		1.28															.34						.22									1.84
Milstead‖	Tallapoosa		.11					.09		.04				.01			.23	.01					.01										0.50
Mobile	Coast	.05	.28													T.	.37	.03					.18	.01									0.92
Montgomery	Alabama	.04															.53						.66										1.23
Newbern	Black Warrior	.10								.05	.36							.34						.97									1.82
Oneonta	...do		.80															.58						.25									1.63
Opelika‖	Tallapoosa																T.																T.
Ozark‖	Coast	T.	1.47														.35							.10									1.92
Prattville	Alabama		.02												.06	.14		.31						.42									0.96
Pushmataha	Tombigbee		.70						.10									.44						.10									1.34
Selma‖	Alabama							T.		.03		T.		.02			.15																0.20
Spring Hill	Coast																.09	.72						1.20									2.01
Talladega	Coosa		.77															.56						.34									1.67
Tallassee‖	Tallapoosa		2.09															.40						.36									2.76
Thomasville‖	Tombigbee						.05											.20						.10									0.35
Troy	Escambia																	.36						.54									0.90
Tuscaloosa‖	Black Warrior		1.68															.28						.20									2.16
Tuskegee	Tallapoosa		.06						.08									.60						.80									1.54
Union Springs‖	...do																.09	.62					.31										1.02
Uniontown	Black Warrior																T.	.45						.65									1.10
Valley Head	Coosa																																
Vienna‖	Tombigbee		1.68															.33						.10									2.11
Wetumpka‖	Coosa																																
Mississippi.																																	
Aberdeen‖	Tombigbee	T.								T.					T.	T.		.82						.05									0.87
Agricultural College	...do	T.								.38					T.		.80							.22									1.40
Bay St. Louis	Coast											.02		.10	.18		.28	.18						.19									0.95
Biloxi	...do									.04				1.88	.03		.01	.13						.11									2.20
Booneville	Tombigbee	.28									.26			.43		.72							.40										2.09
Brookhaven‖	Pearl		.13												.30			.29						.09									0.81
Columbia‖	...do														.26	.05		.20						.10									0.61
Columbus‖	Tombigbee	.44	.04							T.					.05	.08		.46						.40									1.47
Crystal Springs‖	Pearl	.25									.04				.05			.17						.65									1.16
Edinburg	...do	.22								T.				.18	.04			.35						.72									1.51
Enterprise‖	Chickasawhay													T.	.14	.02	.01	.34						.28									0.79
Fulton	Tombigbee	.18								.36	.04				.02			.52						1.04									2.16
Hattiesburg‖	Leaf														.12	.64	.16	.32						.20									1.44
Hazlehurst‖	Pearl														.31			.36						.87									1.54
Jackson	...do	.09								.24	.01			.03	.01		.06	.04					.58										1.06
Lake‖	...do		T.												.23		.12						.40										0.75
Lake Como	Leaf		.29												.20			.40						.90									1.79
Laurel	...do	T.												.51	.09		T.	.36					.10	.50									1.56
Leakesville‖	Chickasawhay														.20			T.						T.									0.20
Louisville	Pearl	.11													.07			.50						.50									1.18
McNeill	...do													.45	.19		.14	.07						.16									1.01
Macon‖	Tombigbee										T.				T.	.05		.65						.26									0.96
Magnolia	Pearl	.06								T.				.62	T.		.38						.43										1.49
Meridian	Chickasawhay								T.		T.			T.	.10	.44							.17										0.71
Merrill‖	Pascagoula																	.10						.12									0.22
Monticello	Pearl	.07	T.						.02	.01				.09	.02	T.		.58					.01	.19						.02			1.01
Okolona‖	Tombigbee	T.								.25					T.			.40						.25									0.90
Pascagoula	Mississippi Sound																	.74															0.74
Pearlington	Pearl											T.		.27	.54		.59	.48						.28									2.16
Porterville	Tombigbee														.15		.77						.15										1.07
Shubuta‖	Chickasawhay		.01						.01		.20				.06	.10		.30						.24									0.92
Waynesboro‖	...do		.15								T.				.05	.15		.31						.42									1.08
Woodland	Tombigbee									.11					.10		.44						.29										0.94
Louisiana.																																	
Pearl River	Pearl													*	*	.58	*	.62					*	.22									1.42

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§‖ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 2, South Atlantic and east Gulf States.*

Date.	Virginia.								North Carolina.																Charleston, S. C.	
	Lynchburg.		Norfolk.		Richmond.		Saxe.		Charlotte.		Eagletown.		Fayetteville.		Hatteras.		Newbern.§§		Raleigh.		Reidsville.		Salisbury.		Wilmington.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	72	36	76	51	75	51	77	40	71	51	77	48	80	43	74	56	82	41	75	49	72	44	.....	.....	75	57	73	61
2...	77	59	75	59	75	59	78	60	74	59	76	58	78	52	78	65	81	51	72	59	.....	.....	.....	.....	78	62	78	64
3...	66	48	68	54	67	52	70	38	71	54	70	52	74	48	67	58	78	51	68	53	.....	.....	.....	.....	70	57	74	58
4...	70	48	70	52	70	49	75	46	77	53	73	50	80	50	71	60	78	47	75	53	79	44	.....	.....	77	55	83	57
5...	69	36	62	48	63	43	70	35	74	54	64	34	75	46	60	52	69	40	70	48	75	43	.....	.....	68	48	72	59
6...	60	41	66	49	60	47	69	29	73	48	73	40	80	50	72	52	80	42	76	47	74	49	.....	.....	74	52	77	59
7...	55	44	60	52	58	42	56	44	62	53	64	48	68	53	66	57	68	55	59	49	56	46	.....	.....	73	56	75	60
8...	74	50	71	54	70	51	76	48	70	53	72	47	78	48	74	60	76	46	72	52	73	50	.....	.....	76	52	72	60
9...	63	47	62	52	62	49	64	51	74	49	61	52	76	50	67	57	77	49	67	53	69	54	.....	.....	76	55	74	57
10...	56	43	58	52	58	46	62	46	57	47	64	49	65	52	65	56	71	51	61	49	64	43	.....	.....	68	54	65	57
11...	69	37	68	52	68	45	72	34	67	46	68	44	73	48	68	60	73	50	69	46	73	43	.....	.....	70	54	70	55
12...	77	38	73	56	75	44	78	38	72	49	75	54	77	53	74	61	79	54	73	58	77	45	.....	.....	73	60	72	58
13...	75	40	72	54	75	52	78	36	75	53	76	45	80	54	68	59	78	48	75	56	79	48	.....	.....	74	56	74	62
14...	58	45	61	53	66	52	76	41	73	52	72	49	67	48	67	57	76	51	60	50	66	47	.....	.....	73	53	73	61
15...	76	52	62	51	62	50	73	45	70	55	57	50	69	50	62	55	71	49	66	52	78	54	.....	.....	69	50	70	60
16...	74	47	70	49	68	46	75	42	65	51	68	44	73	46	69	54	76	43	67	47	71	48	.....	.....	72	47	69	55
17...	66	38	68	46	70	40	73	50	68	39	70	53	74	60	71	54	76	46	72	40	71	53	.....	.....	72	52	71	54
18...	43	29	48	38	46	33	50	41	46	33	55	35	64	31	54	42	52	33	48	34	59	32	.....	.....	52	37	54	42
19...	52	27	50	31	49	25	54	18	54	30	51	22	58	22	54	40	59	24	53	30	55	34	.....	.....	59	33	60	38
20...	70	36	67	36	66	38	69	34	65	37	66	34	70	31	66	51	78	31	68	37	67	34	.....	.....	69	43	69	39
21...	73	40	71	53	71	50	75	35	70	44	72	49	76	41	71	59	77	44	72	47	73	40	.....	.....	74	50	71	57
22...	73	47	72	53	72	49	78	39	71	51	74	51	78	43	74	58	77	45	74	49	75	47	.....	.....	75	57	68	57
23...	61	38	67	44	65	38	68	43	59	42	64	48	68	50	71	54	69	55	62	40	65	43	.....	.....	69	44	69	51
24...	44	33	44	36	38	32	43	33	50	36	48	35	50	34	55	40	59	35	40	34	47	36	.....	.....	44	38	54	45
25...	58	38	57	36	58	35	61	30	61	31	57	33	62	28	54	40	.....	29	57	33	60	32	.....	.....	57	33	62	39
26...	65	38	56	42	58	36	63	28	65	40	59	31	67	35	56	48	62	.....	63	40	68	33	.....	.....	62	39	64	45
27...	65	29	50	40	56	36	60	22	69	40	56	32	66	30	52	44	70	34	61	38	68	34	.....	.....	61	40	76	45
28...	72	30	59	42	64	34	70	22	71	39	63	29	72	30	60	47	68	33	69	39	75	34	.....	.....	69	38	65	45
29...	65	31	58	43	59	37	67	34	72	47	59	36	73	50	58	46	63	36	68	42	72	48	.....	.....	69	46	76	49
30...	56	26	45	37	48	33	54	25	55	36	51	29	58	33	48	42	55	30	54	33	58	30	.....	.....	55	36	60	44
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	65.1	39.9	62.9	47.2	63.1	43.1	67.8	37.6	66.7	45.7	65.2	42.7	71.0	43.6	64.9	52.8	74.1[a]	42.9[a]	65.5	45.2	68.5[b]	42.4[b]	.....	.....	68.4	48.5	69.4	53.4

Date.	South Carolina.												Georgia.													
	Columbia.		Conway.§§		Georgetown.		Greenville.§§		Newberry.		Society Hill.		Trial.		Adairsville.§§		Albany.§§		Atlanta.		Augusta.		Dahlonega.		Macon.		Savannah.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
1...	77	53	78	44	73	52	72	42	78	45	.....	.....	77	47	73	46	86	50	73	56	76	50	71	54	78	55	76	62
2...	75	60	80	51	80	57	76	49	78	55	.....	.....	80	53	75	51	85	57	74	55	77	59	72	49	80	58	80	61
3...	74	51	72	53	73	55	73	41	75	42	.....	.....	78	48	74	40	81	46	71	51	73	48	69	51	75	50	75	56
4...	83	53	80	45	80	54	80	42	85	46	.....	.....	83	48	76	45	87	45	78	57	83	47	77	51	84	46	84	57
5...	75	50	74	40	75	50	75	42	78	42	.....	.....	75	43	77	42	86	49	76	60	78	48	73	49	80	48	74	58
6...	78	52	78	44	77	55	74	44	76	46	.....	.....	80	47	77	48	87	56	74	56	81	53	71	54	80	55	78	63
7...	72	54	71	51	72	55	64	51	65	54	.....	.....	77	51	.....	.....	84	58	76	57	79	58	70	56	80	62	78	63
8...	66	55	76	51	75	54	69	54	68	55	.....	.....	77	54	.....	.....	83	57	67	58	70	57	67	56	69	55	73	60
9...	77	48	77	48	76	55	78	49	75	50	.....	.....	77	48	.....	.....	81	55	72	53	77	50	72	46	76	49	76	56
10...	60	50	64	56	72	56	56	50	58	55	.....	.....	74	53	.....	.....	78	54	63	54	61	53	65	53	63	50	67	56
11...	71	48	71	52	70	53	74	48	69	49	.....	.....	74	50	.....	.....	76	56	68	51	72	49	64	56	72	53	70	51
12...	67	50	75	55	72	53	81	46	72	49	.....	.....	72	52	.....	.....	84	56	72	52	74	51	69	48	75	53	74	58
13...	76	54	78	55	75	59	70	49	74	53	.....	.....	78	53	.....	.....	78	57	67	54	75	54	68	51	72	55	76	61
14...	77	52	79	48	71	54	84	55	76	50	.....	.....	76	53	78	40	81	60	72	58	78	53	71	57	77	58	76	60
15...	67	54	73	48	71	56	81	54	63	55	.....	.....	71	57	77	50	80	59	70	54	75	57	68	51	75	55	73	62
16...	73	52	74	45	71	48	64	49	70	49	.....	.....	68	52	72	52	81	59	70	56	75	53	69	50	75	55	77	61
17...	72	46	73	46	73	61	73	51	69	59	.....	.....	74	57	75	44	81	58	62	37	70	47	65	44	68	43	73	54
18...	51	35	65	36	65	39	56	34	52	31	.....	.....	60	33	55	31	56	37	50	31	52	35	49	30	52	34	55	40
19...	60	29	63	32	60	33	59	27	59	26	.....	.....	63	25	47	24	66	31	57	30	60	29	53	24	60	28	62	38
20...	68	35	73	33	70	41	69	28	68	29	.....	.....	73	33	60	27	75	32	63	45	70	33	60	29	68	33	69	45
21...	74	45	78	45	75	52	74	36	75	39	.....	.....	75	43	64	40	81	39	70	50	75	43	67	41	75	43	72	60
22...	75	55	76	45	75	51	73	41	75	45	.....	.....	71	46	70	50	81	50	72	54	75	49	68	47	75	54	73	62
23...	64	46	69	58	70	60	58	44	63	56	.....	.....	66	54	73	50	62	51	56	36	63	49	65	42	66	41	70	47
24...	51	39	66	41	65	43	55	35	55	38	.....	.....	55	40	60	34	66	36	50	32	55	40	52	31	56	37	57	46
25...	62	32	59	30	59	34	68	28	63	28	.....	.....	63	26	50	33	73	34	62	34	63	32	64	33	70	32	65	40
26...	66	35	63	29	62	39	74	32	65	31	.....	.....	66	30	61	32	74	44	66	46	68	37	62	38	67	39	67	49
27...	70	37	66	30	65	37	77	33	70	32	.....	.....	70	30	64	32	75	42	68	51	71	35	67	36	69	36	70	45
28...	72	38	74	33	67	40	79	31	71	33	.....	.....	70	32	65	32	75	34	69	53	70	36	70	38	71	36	70	44
29...	76	46	75	38	75	45	80	34	78	38	.....	.....	77	38	67	37	80	40	72	49	75	41	71	52	77	37	76	50
30...	57	40	58	33	65	39	74	38	57	37	.....	.....	67	37	72	38	79	52	58	44	59	39	64	40	59	41	61	47
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	69.5	46.5	71.8	43.8	71.0	49.3	71.3	41.9	69.3	43.9	.....	.....	72.2	44.5	67.9[a]	39.9[a]	78.1	48.0	67.3	49.1	71.0	46.2	66.4	45.2	71.5	46.4	71.6	53.7

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 2*—Continued.

Date.	Georgia.						Alabama.																Florida.					
	Thomasville.		Waycross.‡‡		West Point.‡‡		Anniston.		Bermuda.		Birmingham.		Eufaula.‡‡		Mobile.		Montgomery.		Tuscaloosa.‡‡		Uniontown.		Avon Park.		Fort Myers.		Gainesville.‡‡	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	81	57	82	54	77	42	78	58	84	51	77	61	78	49	80	64	79	60	81	39	82	54	83	61	82	65	82	60
2...	83	56	84	52	79	59	76	45	79	64	75	54	80	57	82	60	78	60	75	49	81	57	87	63	82	66	85	60
3...	80	50	81	48	75	42	77	40	80	43	80	49	77	44	78	53	79	52	78	41	84	46	84	60	81	65	80	60
4...	86	50	80	45	81	45	82	51	83	44	82	56	81	44	81	56	83	54	83	40	87	53	82	50	78	58	85	47
5...	85	50	85	48	80	47	81	47	83	46	81	57	79	43	80	59	84	52	82	45	86	49	87	50	82	56	88	47
6...	84	55	87	53	80	48	80	57	81	45	80	60	78	45	81	56	83	51	82	48	81	47	86	59	82	61	86	60
7...	83	60	87	54	81	50	81	52	82	53	80	61	78	46	81	60	82	54	82	48	83	47	82	62	81	63	86	62
8...	80	58	89	57	76	52	77	60	79	53	80	65	76	53	78	62	79	60	82	49	81	47	80	64	79	64	81	62
9...	80	57	81	55	75	50	75	54	80	52	77	61	76	55	79	60	79	55	80	54	80	53	81	63	80	65	82	60
10...	79	59	80	54	74	50	71	60	78	50	76	59	76	56	77	59	78	58	78	52	81	52	81	62	81	63	.....	58
11...	75	56	77	51	70	52	69	54	67	54	74	57	73	51	75	63	71	54	77	54	76	57	82	62	80	64	68	59
12...	78	57	81	55	75	48	75	57	77	50	76	55	77	56	76	58	77	52	77	44	78	49	78	62	80	64	83	58
13...	80	63	89	63	73	49	76	59	78	53	77	60	74	51	76	60	76	60	82	48	80	57	83	64	80	64	82	58
14...	81	60	83	68	79	53	77	61	76	58	76	62	77	57	76	65	78	60	77	60	78	60	83	62	81	63	82	62
15...	80	60	83	61	76	50	76	58	.....	.....	79	61	75	49	78	60	78	58	81	56	82	53	80	63	76	62	77	63
16...	79	60	76	62	76	53	74	60	80	52	73	56	75	50	75	66	76	56	75	60	75	53	77	63	76	62	.....	63
17...	71	48	76	55	61	56	60	40	67	48	56	39	64	56	66	48	60	44	54	41	67	44	84	59	77	57	80	54
18...	56	33	59	38	52	34	50	29	56	35	50	31	53	34	58	41	52	37	60	32	53	32	76	59	70	63	56	43
19...	67	28	70	27	60	29	60	27	64	26	60	32	59	25	64	36	62	30	58	28	62	27	76	50	76	53	70	41
20...	75	37	77	35	61	30	68	32	72	31	68	44	66	27	72	51	70	35	74	28	72	34	83	52	79	56	78	46
21...	79	49	82	40	75	31	74	47	78	44	73	55	72	30	76	60	77	48	77	28	78	49	82	53	80	57	79	57
22...	79	50	80	48	76	42	76	54	81	46	77	53	74	43	77	64	79	53	78	38	81	54	84	58	78	61	82	55
23...	68	42	67	51	49	45	59	30	69	45	53	36	58	45	69	45	63	38	45	43	76	43	85	59	79	60	79	59
24...	60	36	61	39	54	35	54	33	63	34	52	31	56	32	65	38	62	35	58	32	61	31	75	50	69	55	62	39
25...	69	34	69	33	65	33	63	32	70	32	65	34	66	31	71	44	70	39	65	32	71	32	70	44	69	50	66	38
26...	75	40	74	35	73	36	71	34	75	35	71	45	70	32	74	45	72	41	70	36	75	40	77	44	75	48	74	40
27...	72	41	73	35	71	36	70	45	76	42	73	52	68	35	75	51	72	47	77	36	76	42	75	50	75	48	73	51
28...	74	36	75	35	69	34	72	38	75	.....	75	49	71	32	74	50	72	42	77	39	75	44	79	57	74	60	.....	50
29...	78	37	80	34	75	36	75	38	76	34	73	46	77	33	76	46	78	42	75	38	78	42	79	57	76	59	78	46
30...	68	46	66	38	61	39	63	41	75	39	66	48	64	34	77	51	66	50	69	39	72	44	83	47	76	54	72	46
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	76.2	48.8	77.8	47.4	71.0	43.5	71.3	46.7	75.6[a]	45.0[b]	71.9	50.9	71.6	43.2	74.9	54.4	73.8	49.2	73.6	42.6	76.4	46.4	80.8	57.0	77.8	59.5	77.6[c]	53.5

Date.	Florida.																Mississippi.							
	Jacksonville.		Jupiter.		Key West.		Miami.		Orlando.		Pensacola.		Tallahassee.‡‡		Tampa.		Columbus.‡‡		Hattiesburg.‡‡		Jackson.		Meridian.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	80	64	80	74	81	73	83	73	82	60	78	66	80	55	82	63	84	51	86	60	88	65	79	63
2	83	62	81	74	81	73	83	72	83	59	78	65	81	58	82	63	79	46	83	59	81	46	76	47
3	78	62	81	65	80	73	85	65	82	59	76	57	78	55	82	62	84	40	86	42	86	39	80	42
4	84	56	79	61	79	70	83	62	83	47	79	59	84	55	81	56	88	43	81	41	88	41	82	45
5	81	60	81	61	78	68	84	62	86	50	78	62	82	58	86	59	84	46	84	42	85	42	82	46
6	81	66	80	74	82	72	82	73	84	58	80	58	81	58	83	62	82	48	82	44	85	47	80	49
7	78	64	78	71	80	71	80	70	82	60	74	64	82	59	81	63	81	50	86	46	86	50	80	49
8	77	63	78	66	80	71	81	69	82	61	74	64	79	59	80	63	83	53	84	56	86	54	80	54
9	77	62	78	72	79	70	80	70	77	58	74	63	78	59	80	61	79	56	86	54	70	61	76	55
10	75	62	78	72	75	68	80	71	78	56	73	62	77	58	80	60	81	53	84	50	83	52	79	53
11	68	57	79	71	78	68	82	74	81	62	73	63	78	56	80	62	79	54	86	52	82	58	73	56
12	77	63	79	71	80	70	81	71	81	62	70	60	78	60	79	61	79	54	82	54	80	53	75	51
13	78	63	78	73	79	71	80	71	80	62	73	64	81	61	81	64	81	54	81	47	81	51	77	52
14	78	63	79	69	78	71	81	70	81	57	72	65	79	59	80	62	74	63	76	62	78	69	72	61
15	76	62	78	68	78	69	78	70	78	58	72	64	78	60	76	62	81	56	84	56	82	64	78	55
16	73	62	80	72	79	70	81	72	77	63	76	66	77	59	78	64	78	58	80	57	81	64	75	59
17	77	57	82	64	78	69	81	68	82	58	67	48	70	62	77	58	55	38	76	56	64	39	59	41
18	57	43	72	64	77	66	80	68	75	54	58	41	56	41	69	47	53	31	54	44	55	30	50	32
19	65	42	75	67	77	66	77	68	74	47	60	43	65	36	72	46	62	26	58	28	68	25	61	27
20	73	52	78	68	80	69	80	67	76	50	68	50	68	42	77	53	74	30	64	36	77	35	73	39
21	76	62	78	66	76	70	82	59	81	52	70	61	70	46	81	57	79	44	83	44	82	61	77	56
22	77	57	80	65	79	70	81	62	82	53	75	65	76	48	79	59	80	60	82	40	82	62	80	53
23	72	46	81	66	82	70	84	64	83	62	70	44	68	56	77	62	50	43	60	44	63	43	53	38
24	61	40	71	52	75	68	76	63	85	45	65	38	60	36	62	47	61	31	68	35	67	32	60	34
25	66	42	70	51	70	62	76	50	68	40	66	47	68	38	69	46	71	32	75	33	77	33	69	34
26	70	48	76	55	75	62	78	56	76	40	70	54	74	43	75	48	76	32	76	37	75	37	70	38
27	70	48	76	68	75	67	78	62	78	47	67	55	70	48	74	54	76	37	84	37	80	38	75	43
28	70	49	77	69	75	66	81	61	78	52	68	54	72	44	74	55	77	40	79	52	77	43	73	43
29	76	47	76	59	75	67	81	54	79	54	75	53	76	49	77	55	77	37	80	37	79	39	74	38
30	65	48	79	57	76	66	80	52	80	44	72	58	80	47	78	49	69	39	79	44	78	38	72	41
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Means	74.0	55.7	77.9	66.2	77.9	68.9	80.6	65.6	79.8	54.3	71.7	57.1	74.9	52.2	77.7	57.4	75.2	44.8	78.3	46.3	78.2	47.0	73.0	46.5

Climatological Data for November, 1909.

DISTRICT No. 3, OHIO VALLEY.

FERDINAND J. WALZ, District Editor.

TEMPERATURE.

Unusually warm weather for the season prevailed through nearly the entire month, there being only a few short periods when the temperature was normal or below. Most of the section directors state that it was the warmest November on record in their respective sections. There were comparatively few days, only 4 or 5 in many localities, when the temperature was as low as freezing, also comparatively few days when there was even frost.

The mean temperature for the month was well above normal in every part of the district. The excess averaged 9° to 11° over the greater portion of the western half of the district and 6° to 9° over the remainder, except in some of the central and southern Appalachian sections, where it was from 3° to 6°. During the first 16 days of the month the temperature was continuously high. Maximum temperatures of 70° and over were of almost daily occurrence, and at several places south of the Ohio River they were even above 80° on several days. At Bowling Green, Ky., a temperature of 88° was registered on the 12th. During the same period the minimum temperatures were rarely below 40°, and mostly between 45° and 55°. The periods 19th-22d and the last 4 or 5 days were also unusually warm, the maximum temperatures registering from 50° to 70° and over, although freezing temperature was frequent at night. The periods 17-18th and 23d-25th were practically the only times when temperature was below normal or much below freezing. On account of the warmth and prevailing sunshine, the month was unusually favorable for outdoor work, and, as a whole, compared more with the usual October than the usual November. At the close of the month lawns and pastures were green over considerable areas and in many places the fruit trees had begun to show signs of budding, and rose bushes were frequently seen in bloom.

PRECIPITATION.

The precipitation, except over parts of Illinois, Indiana, and Ohio, was considerably below normal; in fact not one-half the usual November amount was the rule. The deficiency was greatest and most felt over the Appalachian and southeastern sections of the district, where the amounts were almost universally less than 2 inches and mostly less than 1 inch. At many places in southeastern West Virginia, southwestern Virginia, western North Carolina, and eastern Tennessee the precipitation for the entire month was less than one-half inch. The creeks and other streams in the Appalachian section were very low. In Virginia many streams had gone dry and water had to be hauled even for drinking purposes. Elsewhere over the district, where the rainfall was below normal, it was generally sufficient for the needs of the season. Over portions of southern and eastern Illinois and the upper Wabash Basin in Indiana the precipitation was slightly more than 4 inches. The amount received in central Illinois was a little above normal, this being the only part of the entire district where there was even a slight excess. Over western Ohio, the greater portion of Indiana, Kentucky, and Tennessee the amounts were between 2 and 3 inches, with frequent local exceptions of between 1 and 2 inches.

The distinct rainy periods of the month were 4, as follows: 1st-2d, 7-10th, 15-17th, and the 21st-23d. Nearly all of the rain of the month fell in one or more of these periods, there being only a few light scattered rains outside of these periods, except that in Indiana and Illinois light rain was almost continuous from the 7th to the 17th, inclusive. The principal rain areas during the month moved up the Mississippi Valley to the Lake region and only one or two affected the district to any large extent. The main general storms were in effect about the 8th, 16th, and 22d. Thunderstorms and high winds occurred over a considerable portion of the district in consequence of the general disturbance of the 22d and gave the only stress of weather during the month worth mentioning. At this time some damage was done in Indiana by winds and lightning, several persons being injured and a number of buildings struck by the lightning and destroyed. Hail occurred in parts of Kentucky. At Fulton, Ky., the hailstones were extraordinarily large, considerable damage to window glass, roofs, and other property resulting. At Henderson, Ky., a farmer was killed by lightning and a barn near that place containing several tons of hay and farming implements was burned. Also there was considerable damage from high winds. Local thunderstorms occurred on other dates, but no damage of consequence was reported. The only excessive 24-hour rainfall reported in the entire district was 2.51 inches on the 22d at Anderson, Ind.

WATER POWER ON DIX RIVER, KENTUCKY.

A water power project of considerable moment is being promoted by the Madison Electric Power Company, of Richmond, Ky. It is proposed to make use of the water of Dix River, a tributary of the Kentucky, and emptying into that river near Highbridge. The Dix River is a comparatively small stream and does not carry a very large volume of water as a usual thing, but it runs between high banks as a rule and has a drainage basin of between 600 and 800 square miles. It rises in the foothills of the mountain section, flows in a northwesterly direction in a decidedly sinuous course, and has a considerable fall. These characteristics give it a high value for the development of water power. It is the intention to construct an immense dam in the river at a point near Burgin, 4 miles from Harrodsburg. The base of the dam is to be 156 feet wide. The dam will be 150 feet high and 500 feet long. The estimated cost of the undertaking is $1,000,000, and it will require one or two years to complete the work. The water power developed is to be turned into electric energy and furnish motive power to operate the electric light plants and other enterprises of perhaps a dozen towns in the surrounding country, as well as electric car lines.

It is calculated the dam will furnish between 25,000 and 30,000 horsepower, which will be sufficient for any demand that might be made upon it. The fall in the river between Camp Dick Robinson and the point at which the dam is to be constructed, a distance of a dozen miles or so, is 200 feet, which will have the effect of making the power of great efficiency. The plans are well under way and the promoters of the enterprise are enthusiastic over the prospect of carrying them to a successful issue at an early date.

IMPROVEMENT OF THE TENNESSEE RIVER.

By the last Congress the Secretary of War was authorized and directed to cause to be made a survey of the Tennessee River, from Knoxville to its mouth, with a view to securing the best permanent navigation either by open channel work, or locks and dams, or both, and to make an estimate of the cost of same with a view to securing a depth from Knoxville to Chattanooga of 6 feet, if obtainable, or any such less depth as may be practicable between such depth and the present project depth; and from Chattanooga to the mouth of the river a depth of 9 feet, if obtainable, or such less depth as may be practicable between such depth and the present project depth.

The same act of Congress which authorized the survey provided that data should be submitted as to the commercial importance of the river and information secured to show the benefits to be derived from the contemplated improvement.

The Tennessee River Improvement Association, organized for the purpose of exploiting and pushing the prospective improvement, held their annual meeting at Harriman, Tenn., early in November and adopted resolutions urging the improvement of the Tennessee and its tributaries. Delegates, numbering some 200 or more, and representing the States of Kentucky, Tennessee, Alabama, and Mississippi, attended this meeting. Addresses were made by Mr. John A. Patten, president of the association, and others. The association has gathered a great amount of information of various kinds upon the subject and setting forth the river's importance and the possible results of improvement. Statistics presented at the meeting showed that in spite of the many disadvantages, traffic is increasing on the Tennessee yearly, and proving that if such is the case under existing conditions that unobstructed navigation from headwaters to the mouth of the river would vastly increase its already great commercial importance.

The Tennessee River is the largest tributary of the Ohio and is some 800 miles or more in length. Its headwaters and its chief affluents penetrate a region rich in mineral resources and in timber. It also traverses sections of increasing agricultural and manufacturing interests, while upon its banks are located the large and growing cities of Chattanooga and Knoxville, besides several smaller cities and a number of prosperous towns.

TABLE 1.—*Climatological data for November, 1909. District No. 3, Ohio Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
New York.																				
Allegany	Cattaraugus	1,441	3	43.2	.....	74	1	22	6†	46	1.47	.....	0.36	0.6	15	11	4	15	nw.	Charles E. Whitney.
Bolivar	Allegany	1,800	13	43.7	+ 7.1	74	1	18	30	45	1.66	− 1.00	0.42	1.2	11	10	1	19	sw.	Lowell Andrus.
Franklinville	Cattaraugus	1,598	12	43.2	+ 6.5	72	1	17	30	43	1.53	− 1.62	0.34	3.4	11	10	8	12	s.	John W. Kales.
Jamestown	Chautauqua	1,365	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Olean	Cattaraugus	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.64	.....	0.48	3.0	11	11	5	14	w.	John W. Alles.
Maryland.																				
Deer Park	Garrett	2,457	15	43.5	+ 5.5	70	1	11	30	48	1.06	− 1.42	0.23	0.5	6	.....	.....	.....	.....	S. P. Specht.
Grantsville	....do	2,351	15	45.3	+ 5.7	72	12	19	30	38	0.83	− 1.73	0.53	2.0	3	.....	.....	.....	.....	J. S. Miller.
Oakland	....do	2,461	9	43.6	.....	72	1	13	30	47	1.34	.....	0.28	1.2	11	12	7	11	w.	R. E. Weber.
Pennsylvania.																				
Aleppo	Greene	1,135	8	49.0	.....	75	13	18	30	44	1.07	.....	0.22	T.	7	12	2	16	w.	J. S. Hinerman.
Baldwin	Butler	1,404	3	45.8[a]	.....	69[a]	1†	19[a]	25	39[a]	1.49	.....	0.42	T.	8	14[a]	4[a]	11[a]	w.	S. H. Templeton.
California	Washington	770	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. E. H. Knabenshue.
Claysville	....do	1,127	5	49.8	.....	79	13	18	30	45	0.77	.....	0.21	T.	10	13	9	8	w.	E. T. Buchanan.
Derry Station	Westmoreland	1,172	12	48.5	+ 6.9	76	15	16	30	41	0.99	− 1.88	0.22	T.	6	10	6	14	w.	D. M. Wineman.
Franklin	Venango	955	35	45.5	+ 5.8	71	13†	16	24†	37	1.66	− 1.57	0.55	0.5	8	8	12	10	w.	Venango Water Co.
Freeport	Armstrong	772	31	.....	.....	.....	.....	.....	.....	.....	1.34	− 1.79	0.40	0.5	9	.....	.....	.....	.....	Mrs. A. R. Burtner.
Greensburg	Westmoreland	1,100	1	48.5	.....	74	13	21	24	37	0.62	.....	0.18	T.	8	14	8	8	sw.	M. W. Crownover.
Greenville	Mercer	950	13	46.6	+ 8.2	74	13	19	30	40	2.49	− 0.32	0.52	1.2	12	19	2	9	w.	A. M. Orr.
Grove City	....do	1,250	2	46.8	.....	73	14	17	30	38	1.39	.....	0.33	0.3	11	10	11	9	sw.	H. W. Harmon.
Indiana	Indiana	1,350	12	47.9	+ 7.0	76	1	20	24†	38	1.08	− 1.94	0.40	T.	5	13	5	12	s.	Rev. J. M. Welch.
Irwin	Westmoreland	884	12	50.3	+ 7.3	79	12†	18	25	51	0.70	− 1.63	0.27	T.	5	9	13	8	.....	J. B. Gallagher.
Johnstown	Cambria	1,184	21	47.2	+ 5.6	79	1	22	28†	44	1.06	− 2.14	0.32	T.	10	11	12	7	sw.	E. C. Lorentz.
Lycippus	Westmoreland	1,420	17	49.4	+ 7.4	75	13	20	24	38	1.05	− 1.49	0.26	0.0	9	.....	.....	.....	.....	Murray Forbes.
Pittsburg	Allegheny	842	39	50.4	+ 7.5	73	14	23	24	31	0.84	− 1.71	0.34	0.2	9	10	8	12	s.	U. S. Weather Bureau.
Saegerstown	Crawford	1,116	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. G. Apple.
St. Marys	Elk	1,740	11	44.4	+ 7.1	75	14	19	24†	40	2.29	− 0.42	0.56	3.0	9	11	10	9	.....	Wm. E. Wittman.
Skidmore	Lawrence	1,000	5	47.2	.....	75	14	15	24	39	1.50	.....	0.40	T.	6	20	1	9	sw.	W. H. Stoner.
Somerset	Somerset	2,250	53	46.8	+ 8.2	73	1	18	25†	38	1.35	− 2.09	0.26	1.5	8	7	18	5	nw.	W. M. Schrock.
Uniontown	Fayette	999	21	48.8	+ 5.6	75	13†	23	24	39	0.64	− 2.71	0.13	T.	8	15	6	9	se.	Wm. Hunt.
Warren	Warren	1,137	20	43.8	+ 4.8	71	1	20	24†	41	2.40	− 1.08	0.66	5.8	6	13	1	16	se.	Anna Simpson.
West Virginia.																				
Aborvale	Pocahontas	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. E. Arbogast.
Bancroft	Putnam	.....	5	50.7	.....	79	13	23	25†	45	2.07	.....	0.59	T.	10	12	6	12	sw.	James Hill.
Beckley	Raleigh	2,440	10	51.0	+ 8.7	77	16	19	26	53	1.16	− 1.23	0.58	T.	3	20	3	7	w.	John A. Ewart.
Ben's Run	Pleasants	622	6	51.4	.....	78	13	23	25†	42	1.10	.....	0.30	0.0	7	18	2	10	.....	J. D. Riggs.
Bluefield	Mercer	2,563	12	49.8	+ 5.4	74	14	20	19	45	.....	.....	.....	.....	.....	22	3	5	.....	Agent, N. & W. Ry. Co
Buckhannon	Upshur	1,472	13	48.4	+ 7.6	75	13	19	30	43	2.22	− 1.44	1.00	T.	5	20	3	7	.....	H. A. Darnall.
Cairo	Ritchie	667	7	50.3	.....	78	14	15	30	47	1.35	.....	0.40	T.	7	11	4	15	w.	Van A. Zevely.
Central Station	Doddridge	900	9	48.2	+ 6.4	78	13	13	25	49	0.89	− 1.79	0.27	T.	8	8	10	12	sw.	G. W. Sherwood.
Charleston	Kanawha	598	6	54.3	.....	75	14†	26	25	40	2.39	− 0.56	0.60	T.	10	17	5	8	w.	R. C. Hewes.
Creston	Wirt	612	7	49.3	.....	74	22	21	25	41	1.26	.....	0.33	0.0	6	12	3	15	w.	J. M. Reed.
Cuba	Jackson	544	7	50.4	.....	78	13†	15	25	43	1.42	− 0.70	0.41	T.	8	11	13	6	w.	C. T. Perry.
Doane	Wayne	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. W. Jude.
Elkhorn	McDowel	1,933	14	50.8	+ 4.8	72	14	24	26	37	1.49	− 1.29	0.41	T.	6	24	1	5	sw.	J. J. Lincoln.
Elkins	Randolph	1,940	10	47.4	+ 7.8	72	13	20	30	44	2.31	− 0.55	0.96	T.	12	11	8	11	w.	U. S. Weather Bureau.
Fairmont	Marion	879	4	48.2	.....	75	13	17	25	41	0.72	− 2.28	0.20	T.	9	.....	.....	.....	.....	H. Glenn Fleming.
Glenville	Gilmer	738	14	50.0	+ 6.8	79	13	19	25	45	1.69	− 1.43	0.40	T.	6	9	4	17	.....	John Holt.
Grafton	Taylor	985	16	49.0	+ 6.0	79	13	19	25†	48	1.23	− 1.85	0.28	T.	10	12	10	8	.....	S. W. Wilson.
Green Sulphur Springs	Summers	1,600	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. Gwinn.
Hinton	....do	1,400	13	48.2[c]	+ 3.0	72[c]	5†	25[c]	26	38[c]	1.14[c]	− 1.19	0.34[c]	T.	8[c]	17[c]	0[c]	10[c]	w.	R. R. Flanagan.
Huntington	Cabell	510	12	49.7	+ 6.3	78	13	21	24	42	1.36	− 1.59	0.44	0.0	7	15	1	14	w.	L. H. Hutchinson
Lewisburg	Greenbrier	2,200	8	47.4	+ 6.0	71	8	20	30	42	0.65	− 2.07	0.51	T.	4	20	5	5	w.	Geo. T. Argabrite.
Logan	Logan	665	7	54.9	.....	84	11	25	25†	42	1.70	.....	0.95	T.	4	5	22	3	e.	H. C. Ragland.
Lost Creek	Harrison	1,033	11	49.1	+ 6.9	78	13	16	25	50	0.93	− 1.66	0.22	T.	6	16	1	13	sw.	Allen Smith.
Madison	Boone	704	4	49.6	.....	75	7†	20	26	45	1.19	.....	0.61	0.0	5	24	3	3	.....	S. E. Bradley.
Mannington	Marion	967	6	47.4	.....	77	13	16	25	43	0.71	.....	0.22	0.6	13	14	3	13	sw.	Jas. A. Morgan.
Morgantown	Monongalia	1,250	13	43.2	+ 4.6	64	2†	18	30	37	1.90	− 1.14	1.00	T.	5	12	11	7	.....	Horace Atwood.
Marlinton	Pocahontas	2,169	10	50.5	+ 7.3	75	13	21	25	39	0.83	− 2.30	0.22	T.	6	17	10	3	s.	N. C. McNeil.
Moundsville	Marshall	640	6	50.8	.....	79	14	20	30	44	0.95	.....	0.22	T.	11	16	2	12	sw.	J. E. Matthews.
New Cumberland	Hancock	987	9	48.4	.....	77	13	18	24	42	1.25	− 0.58	0.35	T.	5	12	6	12	s.	Frank S. Evans.
New Martinsville	Wetzel	634	14	51.5	+ 7.1	79	14	22	25	44	0.85	− 1.94	0.32	T.	7	18	3	9	s.	Wm. Ankron.
Nuttallburg	Fayette	2,252	12	48.1	+ 3.3	75	1	20	18†	30	3.52	+ 0.94	1.35	1.0	4	22	2	6	.....	Stephen Tully.
Parkersburg	Wood	638	21	52.0	+ 8.8	75	14	26	25	35	0.55	− 2.28	0.17	T.	7	9	8	13	s.	U. S. Weather Bureau.
Parsons	Tucker	1,662	7	47.6	+ 6.0	76	14†	18	26	50	0.70	− 1.64	0.32	T.	3	17	7	6	.....	J. W. Swisher.
Philippi	Barbour	1,192	10	48.6	+ 5.2	77	13	16	30	50	1.13	− 1.93	0.26	0.8	12	6	13	11	nw.	J. D. Dadisman.
Pickens	Randolph	2,785	16	48.6[a]	+ 8.1	77[a]	11†	18[a]	19	43[a]	3.85[a]	+ 0.39	2.01[a]	3.0[a]	7[a]	13[b]	6[b]	9[b]	w.	Dr. J. L. Cunningham.
Pineville‖	Wyoming	.....	1	51.2	.....	81	11†	22	19†	53	0.88	.....	0.42	0.0	6	9	9	12	.....	E. M. Senter.
Point Pleasant	Mason	553	14	50.7	+ 5.6	77	14	20	25	41	1.51	− 1.43	0.40	0.0	8	9	1	20	ne.	E. H. Armstrong.
Powellton	Fayette	904	13	52.0[a]	+ 7.7	76[a]	11†	25[a]	26	39[a]	1.46[a]	− 1.07	0.39[a]	T.[a]	6	7	13	10	n.	D. Swain.
Princeton	Mercer	2,469	6	44.0	.....	68	2	18	19	38	0.69	.....	0.34	1.0	4	13	13	4	w.	H. Scott.
Robertsburg	Putnam	.....	.....	49.2	.....	80	13†	20	25	46	1.38	.....	0.41	T.	8	14	2	14	s.	E. P. Turley.
Ryan	Roane	693	5	49.7	.....	77	13†	16	25	50	1.58	.....	0.41	T.	10	14	10	6	.....	Wm. E. Ryan.
Smithfield	Wetzel	.....	5	47.7	.....	76	10	19	25	40	1.07	.....	0.33	T.	6	24	4	2	ne.	H. F. Whisler.
Spencer	Roane	710	6	48.6	.....	80	13	14	25†	57	1.29	− 0.98	0.44	T.	4	4	22	4	.....	A. M. McKown.
Sutton	Braxton	.....	4	49.8	.....	82	13	20	24	50	1.96	.....	0.60	T.	5	22	1	7	.....	J. E. Baughman.
Terra Alta	Preston	3,207	8	47.0	+ 5.6	70	12†	18	25	34	2.11	− 1.22	1.10	1.8	5	15	6	9	w.	C. F. Dodge.
Union	Monroe	.....	6	45.2	.....	79	2	17	30	42	0.85	.....	0.40	T.	3	.....	.....	.....	.....	Shelton Clarke.
Valley Fork	Clay	.....	6	47.8	.....	79	13	17	25	54	1.20	.....	1.20	T.	1	10	17	3	.....	Miss Blanche Pierson.
Webster Springs	Webster	1,500	6	50.4	.....	77	13	22	25	41	2.70	.....	1.60	2.0	7	14	11	5	sw.	D. H. Hamrick.
Wellsburg	Brooke	1,225	8	48.8	.....	71	13	20	24	33	1.33	− 0.75	0.39	0.3	10	10	8	12	w.	C. P. Waugh.
Weston	Lewis	824	14	47.6[b]	.....	75[b]	13	12[b]	25	45[b]	2.40[b]	− 1.13	0.90[b]	1.6	9[b]	12	10	8	sw.	C. M. Davis.
Wheeling	Ohio	64[b]	25	47.6	.....	76	14	23	30	41	1.12	− 1.45	0.34	T.	7	11	5	14	sw.	Miss M. B. Forsyth.
Williamson	Mingo	660	7	52.6	.....	81	14	24	20	45	1.24	− 1.65	0.72	0.0	6	12	8	10	e.	J. F. Keyser.
Ohio.																				
Amesville	Athens	630	6	49.6	.....	79	14	17	25	46	1.43	.....	0.74	0.0	5	14	11	5	sw.	F. W. Gibson.
Bangorville§	Richland	1,380	23	47.8	+ 8.5	73	14	21	24	32	3.12	+ 0.06	0.57	1.8	15	8	13	9	sw.	S. M. Painter.
Bellefontaine	Logan	1,276	16	48.7	+ 7.8	72	14	21	24	31	3.99	+ 1.48	0.71	1.0	12	12	9	9	s.	C. L. Lane.
Bladensburg	Knox	1,100	13	47.0	+ 9.1	74	13	15	24	50	2.15	− 0.14	0.65	T.	5	15	9	6	sw.	Miss M. A. Elliott.
Cadiz	Harrison	1,245	6	49.0	.....	74	14	21	24	33	1.65	.....	0.64	0.1	11	12	5	13	s.	H. B. McConnell.
California	Hamilton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. W. Ellms.
Cambridge	Guernsey	803	17	48.8	+ 9.6	77	13†	19	24	44	1.31	− 1.02	0.58	0.0	5	6	19	5	.....	Samuel Mehaffey.
Camp Dennison	Hamilton	570	17	51.4	+ 8.6	75	14	23	25†	38	1.75	− 1.30	0.73	T.	11	16	7	7	sw.	H. F. Pinkvoss.
Canal Dover	Tuscarawas	884	16	47.0	+ 7.2	72	14	21	24†	35	1.82	− 0.77	0.47	T.	9	10	14	6	s.	Ed. S. Slingluff.
Canton	Stark	1,065	27	46.8	+ 6.9	74	14	21	24	31	2.18	− 0.46	0.57	1.5	13	12	7	11	s.	Prof. C. F. Stokey.
Cardington	Morrow	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. A. Beatty.
Chillicothe	Ross	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Owen L. Brown.

TABLE 1.—*Climatological data for November, 1909. District No. 3*—Continued.

Stations.	Counties	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Ohio—Cont'd.																			
Cincinnati	Hamilton	628	39	53.1	+ 8.5	77	6	27	24	36	1.42	− 1.79	0.54	T.	6	10	10	10	se.	U. S. Weather Bureau.
Circleville	Pickaway	694	15	51.2	+ 8.2	76	14	23a	26	34a	1.65	− 1.24	0.68	T.	6	11	9	10	s.	Samuel W. Courtright.
Clarington	Monroe	600	7	49.7	.....	80	13	22	25†	45	1.33	− 0.46	0.40	T.	14	12	3	15	sw.	Col. S. Tschappat.
Clarkesville§	Clinton	1,010	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. T. M. Williams.
Columbus (1)	Franklin	918	32	49.6	+ 8.2	74	14	24	24	38	1.66	− 1.45	0.71	0.1	10	7	9	14	se.	U. S. Weather Bureau.
Columbus (2)	....do	757	27	49.8	+ 9.3	74	14	22	29	34	1.77	− 1.11	0.70	T.	8	5	16	9	sw.	Ohio State University.
Columbus (3)	....do	.....	1	51.8	.....	73	14†	26	24†	32	1.94	.....	0.42	T.	9	7	17	6	se.	Capt. Paul Mason.
Columbus Reservoir	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.60	.....	0.62	T.	5	3	2	25	sw.	Superintendent.
Coshocton	Coshocton	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.68	.....	0.42	0.0	10	.....	.....	.....	.....	Mrs. Ada Jeffries.
Dayton (1)	Montgomery	790	27	51.0	+ 9.0	76	14	23	24	35	2.00	− 1.14	0.90	0.1	11	13	10	7	s.	Edith E. L. Boyer.
Dayton (2)	....do	.....	16	.....	.....	.....	.....	.....	.....	.....	1.90	− 0.96	0.57	.....	10	22	1	7	w.	Mrs. D. D. Rist.
Delaware	Delaware	927	13	48.5	+ 8.0	74	14	20	24	36	2.82	+ 0.09	0.83	T.	12	13	5	12	sw.	L. L. Hudson.
Demos	Belmont	1,325	20	50.1	+ 8.8	78	13	19	24	33	1.22	− 1.03	0.30	0.4	10	14	9	7	s.	J. F. Dysart.
Frankfort	Ross	750	17	52.8	+10.4	77	14	21	25	40	1.80	− 0.89	0.60	0.0	5	19	3	8	sw.	O. A. Cory.
Garrettsville	Portage	1,005	25	46.6	+ 7.9	74	13	17	30	41	2.57	− 0.69	0.62	3.0	11	9	9	12	sw.	S. M. Luther.
Granville	Licking	960	25	49.2	+ 9.2	73	13†	21	26	38	1.84	− 1.33	0.48	T.	9	14	5	11	sw.	Dr. L. E. Davis.
Gratiot§	....do	1 000	19	48.0	+ 7.0	72	14	20	26	37	0.79	− 1.95	0.52	0.5	5	8	15	7	w.	W. B. Longstreth.
Green	Adams	500	17	52.2	+ 8.0	79	14†	23	25	39	1.16	− 1.86	0.53	T.	3	23	1	6	sw.	W. F. Kenyon.
Green Hill	Columbiana	1,135	18	46.1	+ 7.5	73	13†	19	25†	38	1.73	− 0.58	0.37	0.6	9	8	15	7	sw.	Jos. E. Bentley.
Greenville	Darke	1,060	24	49.4	+ 9.2	74	14	22	24	32	3.76	+ 0.45	1.83	T.	10	6	15	9	s.	G. A. Katzenberger.
Hillsboro*	Highland	.....	2	51.4	.....	75	13†	22	18	34	2.43	.....	1.00	T.	8	11	9	7	sw.	Carey H. Roush.
Ironton	Lawrence	575	27	53.1	+ 9.3	79	14	23	25	43	1.64	− 1.19	0.48	0.0	6	9	11	10	se.	James Bull.
Jacksonburg	Butler	975	22	51.0	+ 9.0	77	13	22	24	40	2.13	− 0.99	0.74	0.0	7	16	6	8	se.	Dr. J. B. Owsley.
Kenton	Hardin	.....	7	48.7	.....	73	14	20	24	37	2.60	.....	0.91	T.	10	12	7	11	s.	N. S. Martin.
Killbuck*	Holmes	1,087	17	47.5	+ 7.6	73	13	20	24	36	2.60	+ 0.15	0.61	T.	6	12	7	11	w.	Geo W. Nowells.
Lancaster	Fairfield	898	14	50.9	+ 8.6	75	14	24	24	25	1.48	− 1.43	0.56	T.	5	12	11	7	sw.	R. L. Renshaw.
Lawshe	Adams	900	6	50.7	.....	77	14	20	26†	45	1.76	.....	0.50	0.0	6	15	6	9	w.	Ruth W. Hoffman.
McConnelsville	Morgan	710	26	50.0	+ 8.0	76	13†	21	26	39	1.60	− 1.24	0.69	0.2	12	9	7	14	s.	C. H. Morris.
Marietta	Washington	627	66	51.5	+ 8.9	74	13†	25	25†	37	0.98	− 2.04	0.30	T.	11	9	9	12	s.	Prof. T. D. Biscoe.
Marion	Marion	980	19	49.4	+ 8.8	75	14	21	24†	39	2.58	+ 0.03	0.59	T.	8	8	14	8	se.	E. H. Raffensperger.
Milfordton	Knox	1,200	17	48.4	+ 9.6	73	14	20	25	36	2.17	− 0.15	0.80	1.0	7	17	8	5	sw.	L. H. Burgess.
Milligan§	Perry	875	16	48.2	+ 7.2	77	14	16	25	43	0.75	− 1.49	0.44	T.	6	8	12	10	sw.	V. C. Eyeland.
Millport	Columbiana	1,145	18	46.6	+ 7.8	74	14	19	24†	40	1.58	− 0.78	0.48	0.5	9	10	11	9	sw.	G. F. Copeland.
Nellie	Coshocton	850	9	45.2	.....	73	1†	18	29	49	1.86	− 0.70	0.50	T.	11	18	3	7	w.	E. L. Gamertsfelder.
New Alexandria	Jefferson	1,050	25	51.0	+10.2	76	14	20	30	34	1.05	− 1.69	0.65	T.	2	14	5	11	e.	Mrs. Mary K. Pennell.
New Berlin	Stark	1,100	17	47.6e	+ 8.3	72a	13†	20	25	38a	2.58	+ 0.12	0.68	1.0	11	15	1	14	w.	Clayton Holl.
New Richmond	Clermont	788	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Waterford	Columbiana	1,053	16	46.6	+ 7.1	72	14	19	24	39	1.69	− 1.04	1.00	1.5	....	9	7	14	sw.	Sam. C. Scott.
North Lewisburg	Champaign	1,095	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. B. Wade.
Orangeville	Trumbull	945	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. N. Ridenour.
Pataskala	Licking	1,050	17	48.6	+ 8.1	74	14	21	24†	38	2.11	− 1.00	0.60	0.3	12	6	18	6	sw.	L. C. Burckhalter.
Philo (1)	Muskingum	1,018	15	50.8	+ 8.2	75	14	22	24†	31	1.30	− 0.90	0.45	T.	7	10	13	7	s.	Louis Hardtla.
Philo (2)§	....do	.....	6	50.8	.....	77	14	20	30	41	1.27	.....	0.51	0.1	9	12	14	4	sw.	F. E. Stewart.
Plattsburg	Clark	1,130	17	49.1	+ 8.1	74	14	24	24	31	1.77	− 1.32	0.65	T.	4	16	4	10	sw.	W. G. Branch.
Pomeroy	Meigs	781	26	53.7	+10.2	79	14	23	25	36	1.53	− 0.74	0.47	0.0	7	10	13	7	s.	Dr. H. A. Schirrman.
Portsmouth	Scioto	527	79	51.5	+ 6.8	75	14	23	25	36	1.73	− 1.25	0.65	T.	8	12	3	15	w.	J. B. Gish.
Rittman	Wayne	990	17	46.1	+ 6.3	78	13	20	25	35	2.75	− 0.52	0.61	T.	6	11	5	14	w.	T. B. Arnett.
Shenandoah§	Richland	1,100	18	45.5	+ 6.8	74	13	20	24†	32	3.34	+ 0.84	1.00	0.5	13	4	18	8	sw.	H. B. Blake.
Sidney	Shelby	985	15	50.6	+ 9.2	75	13†	22	24	32	2.94	− 0.27	1.75	T.	8	12	7	11	sw.	Miss M. C. Sheridan.
Somerset	Perry	1,080	11	48.6	+ 6.0	73	14	21	23†	41	1.17	− 1.40	0.49	1.0	9	12	8	10	s.	W. A. Webster.
Springfield	Clark	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.20	− 0.81	0.86	0.1	8	11	12	7	se.	H. R. McClintock.
Summerfield	Noble	.....	4	49.6	.....	75	13†	18	30	39	1.31	.....	0.44	0.2	11	7	15	8	s.	D. D. Thomas.
Thurman	Gallia	696	17	53.2	+ 9.1	80	14	19	25	42	1.22	− 1.41	0.50	0.0	4	8	8	14	w.	Prof. J. H. Williams.
Urbana	Champaign	1,031	14	49.8	+ 9.4	75	14	20	24	35	2.78	+ 0.31	0.86	T.	8	9	12	9	sw.	M. D. McCorkle.
Warren	Trumbull	.....	12	45.6f	+ 5.7	70i	13	21b	24	32i	2.62	− 0.12	0.60	2.7	10	13	7	8	sw.	D. Lorbach.
Waverly§	Pike	590	27	52.0	+ 9.3	80	14	19	25	41	1.74	− 1.20	0.80	T.	11	16	5	9	s.	Charles Michener.
Waynesville	Warren	700	25	52.0b	+10.7	76b	14	22b	24	42b	1.83b	− 1.51	0.53	0.0	7b	17	3	10	sw.	Experiment Station.
Wooster	Wayne	1,030	25	48.4	+ 8.6	72	13†	21	24	36	2.91	+ 0.03	0.52	0.5	10	6	5	19	s.	G. R. Patton.
Youngstown	Mahoning	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.97	.....	0.39	T.	10	16	0	14	w.	S. G. Sprague.
Zanesville	Muskingum	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.23	− 1.31	0.40	T.	8	10	1	19	s.	John W. Fox, sr.
Virginia.																				
Big Stone Gap	Wise	1,540	18	50.2	+ 6.3	74	6	23	19†	41	1.86	− 1.85	0.80	0.0	5	24	2	4	w.	Agric. Experiment Sta.
Blacksburg	Montgomery	2,170	18	46.2	+ 3.9	73	8	17	19†	51	0.48	− 1.84	0.27	T.	3	14	7	9	w.	C. H. Greever.
Burksgarden	Tazewell	3,250	14	43.9	+ 3.5	65	6†	13	19	51	0.45	− 2.79	0.45	0.0	1	18	4	8	w.	Henry Nicoll.
Elk Knob	Lee	3,243	6	53.6	.....	73	7	24	18†	31	1.54	.....	0.55	0.0	6	20	5	5	s.	E. C. Williams.
Galax	Grayson	2,300	....	47.8	.....	72	9†	19	19	46	0.56	.....	0.28	T.	2	22	3	5	sw.	Miss Alice G. Jewett.
Ivanhoe**§	Wythe	2,028	5	46.0	.....	68	2†	20	30	42	0.44	.....	0.22	0.0	2	18	9	3	w.	S. W'n. State Hospital.
Marion**	Smyth	2,224	14	48.0	+ 4.1	72	1†	12	19	42	0.36	− 2.04	0.36	0.0	1	27	2	1	s.w.	James M. Graham.
Max Meadows	Wythe	2,028	13	47.9d	+ 8.0	72d	15	21d	19	42d	0.56d	.....	0.18d	0.0	4d	17d	6d	3d	n.	Frank M. Baker.
Mendota	Washington	1,350	....	.....	.....	.....	.....	.....	.....	.....	1.17	.....	0.40	0.0	5	.....	.....	.....	.....	Arthur Roberts.
Radford	Montgomery	1,773	....	.....	.....	.....	.....	.....	.....	.....	0.11	.....	0.11	0.0	1	.....	.....	.....	.....	Mrs. L. E. Venable.
Speers Ferry	Scott	1,221	....	.....	.....	.....	.....	.....	.....	.....	1.12	− 1.35	0.36	0.0	5	14	9	7	e.	U. S. Weather Bureau.
Wytheville	Wythe	2,293	16	48.0	+ 3.7	71	15	21	19	42	0.57	− 1.29	0.35	T.	6	16	9	5	w.	J. D. Link.
North Carolina.																				
Andrews	Cherokee	.....	....	52.4	.....	80	12	20	19†	49	1.17	.....	0.61	0.0	3	16	12	2	sw.	U. S. Weather Bureau.
Asheville	Buncombe	2,250	30	51.0	+ 5.9	75	5	21	19	42	0.07	− 3.23	0.04	T.	4	20	7	3	se.	T. L. Lowe.
Banners Elk	Watauga	3,750	1	44.6	.....	68	5	14	19	41	0.58	.....	0.46	0.0	3	22	3	5	w.	W. E. Breese.
Brevard	Transylvania	2,230	8	50.4	.....	76	4†	18	19†	47	0.47	.....	0.36	0.0	3	25	4	1	n.	D. K. Collins.
Bryson City	Swain	2,000	.....	.....	.....	.....	.....	.....	.....	.....	0.87	− 2.58	0.48	0.0	2	.....	.....	.....	.....	T. W. Valentine.
Hendersonville	Henderson	2,167	13	51.0	+ 4.5	76	15†	18	19	54	0.57	− 2.35	0.24	0.0	5	23	2	5	s.	P. A. Garner.
Hot Springs	Madison	1,326	11	54.3a	+ 4.5	78a	5	22a	25	43a	0.35	.....	0.29	0.0	2	26	3	1	w.	G. T. Colvard.
Jefferson	Ashe	2,800	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. E. Finley.
Marshall	Madison	1,646	8	52.6	.....	79	5	20	19	50	0.22	.....	0.22	0.0	1	.....	.....	.....	.....	Miss Julia Campbell.
Murphy	Cherokee	1,614	.....	.....	.....	.....	.....	.....	.....	.....	0.70	.....	0.50	0.0	2	.....	.....	.....	.....	B. C. Hawkins.
Rock House§	Macon	2,800	17	52.8	+ 6.2	69	4†	22	18	29	1.11	− 3.68	0.57	0.0	3	18	7	5	sw.	Lucien Buck.
Sunburst	Haywood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. P. Swift.
Waynesville	....do	2,756	15	49.8	+ 4.1	74	5	20	19†	43	0.10	− 2.39	0.10	0.0	1	25	5	0	nw.	R. A. Kimzey.
Georgia.																				
Diamond	Gilmer	2,020	16	54.2a	+ 5.7	78	4	23	19	37	1.08	− 2.95	0.57	0.0	3	21	5	4	.....	Ralph A. Snow.
LaFayette	Walker	781	2	53.6	.....	85	4	25	19	45	1.07	.....	0.65	0.0	3	26	2	2	.....	Prof. J. B. Hobdy.
Alabama.																				
Albertville	Marshall	1,042	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss Maggie Rinkle.
Bridgeport	Jackson	660	.....	.....	.....	.....	.....	.....	.....	.....	0.90	.....	0.50	0.0	2	18	7	5	n.	Ernest A. Carriger.
Decatur	Morgan	573	27	56.9e	+ 6.2	83f	5	26	20	46f	2.35	− 1.06	1.35	0.0	4	16	1	13	s.	G. H. Smith.
Florence	Lauderdale	563	25	59.5	+ 8.9	84	5†	25	18	43	1.67	− 1.51	0.51	0.0	6	24	5	1	s.	L. S. Long.
Guntersville	Marshall	580	....	.....	.....	.....	.....	.....	.....	.....	1.17	.....	0.58	0.0	3	17	8	5	n.	Albert Klish
Madison	Madison	573	15	58.9	+ 7.6	83	4†	25	18	41	1.69	− 1.49	0.90	0.0	4	25	5	0	sw.	

TABLE 1.—*Climatological data for November, 1909. District No. 3*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Alabama—Cont'd.																				
Riverton	Colbert	360	12	56.2	+ 6.3	82	4†	24	18	44	1.80	− 1.78	0.56	0.0	6	18	6	6	e.	E. R. Nelles.
Scottsboro	Jackson	652	26	56.0[b]	+ 5.9	81[b]	4†	22[b]	19	46[b]	1.16	− 2.58	0.66	0.0	2	16	13	1	.....	Miss Irene Caldwell.
Tuscumbia	Colbert	488	27	54.9	+ 3.7	81	5†	27	19	41	1.68	− 1.61	0.59	0.0	4	18	2	10	se.	Samuel Moore.
Tennessee.																				
Ashwood	Maury	725	31	58.8	+10.1	80	5	26	18	42	1.60	− 2.33	0.75	0.0	3	12	7	11	s.	Mrs. J. W. Fleming.
Benton	Polk	880	23	55.2	+ 6.2	80	4	22	19	43	1.76	− 1.35	1.40	0.0	3	12	13	5	s.	G. L. Williams.
Byrdstown	Pickett	1,026	15	58.4	+11.2	82	5	26	25	41	2.06	− 1.98	0.79	T.	6	12	15	3	s.	Dr. Jno. C. Chilton.
Carthage	Smith	500	27	58.0	+10.0	85	5	27	19†	44	2.96	− 0.96	1.64	0.0	6	18	5	7	sw.	E. C. Pickering.
Cedar Hill	Robertson	625	12	59.0	+10.3	85	5	24	18	37	2.15	− 2.64	1.00	T.	5	18	10	2	s.	J. F. Ruffin.
Chattanooga	Hamilton	808	31	57.0	+ 6.7	81	4	31	29	31	1.65	− 2.53	0.60	0.0	3	17	9	4	se.	U. S. Weather Bureau.
Clarksville	Montgomery	520	43	57.6	+ 9.7	82	5	27	18	40	2.52	− 1.76	1.15	0.0	9	17	7	6	s.	Prof. Jas. A. Lyon.
Decatur	Melgs	850	14	52.8	+ 4.2	79	4†	21	19	44	0.96	− 2.64	0.53	0.0	3	19	9	2	sw.	J. W. Lillard.
Dickson	Dickson	800	13	58.0	+10.6	84	6	22	18	41	1.77	− 2.15	0.81	0.0	5	13	16	1	s.	N. R. Sugg.
Dover	Stewart	.....	15	58.8	+11.1	87	5	24	18	40	3.09	− 1.92	0.91	0.0	5	18	3	9	s.	A. M. Tippit.
Dunlap	Sequatchee	726	....	56.4	.....	85	4	23	19	47	0.81	.....	0.65						.....	S. B. Boyd.
Elizabethton	Carter	1,575	20	55.0	+ 8.7	79	1†	24	19	46	0.95	− 1.36	0.70	0.0	4	23	6	1	w.	Lee F. Miller.
Erasmus	Cumberland	1,850	13	51.4	+ 7.0	79	5	20	19	48	2.11	− 1.82	1.18	T.	7	19	7	4	sc.	Mrs. E. D. Ashley.
Florence	Rutherford	560	28	56.2	+ 7.8	79	5†	28	19†	37	1.75	− 1.89	0.64	0.0	3	20	5	5	s.	Erastus P. Bell.
Franklin	Williamson	655	18	56.0	+ 8.1	79	8	26	18	38	2.19	− 1.40	0.85	0.0	5	15	8	7	.....	J. L. Parkes, jr.
Harriman	Roane	841	14	52.4	+ 5.1	75	4†	25	19	42	1.96	− 1.54	0.71	0.0	4	14	14	2	.....	Robert R. Ayres.
Hohenwald	Lewis	983	24	56.4	+ 8.6	82	5	24	18	48	3.05	− 1.07	1.38	0.0	4	15	11	4	w.	John Lutzelman.
Iron City	Lawrence	.....	12	57.0	+ 7.5	82	7	20	19	45	1.43	− 2.34	0.30	0.0	6	0	19	11	s.	Capt. H. P. Seavy.
Johnsonville	Humphreys	364	14	57.0	+ 8.0	82	5†	25	18	46	1.84	− 2.74	0.78	0.0	8	14	8	8	s.	Miss Sallie B. Mathews.
Jonesboro	Washington	1,740	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	James H. Epps, jr.
Knoxville	Knox	977	39	54.2	+ 7.1	77	13	27	19	33	0.91	− 2.69	0.49	0.0	4	15	13	2	sw.	U. S. Weather Bureau.
Lebanon	Wilson	522	....	58.2[c]	.....	82[c]	5	25[c]	24	41[c]	1.83[c]	.....	0.60[c]	0.0	5	15[c]	3[c]	9[c]	s.	Logan Fields.
Lewisburg	Marshall	727	16	57.2	+ 8.0	85	1	25	18†	45	1.98	− 1.20	1.02	0.0	5	22	6	2	s.	Dr. R. D. Crutcher.
Lynnville	Giles	770	21	56.8	+ 8.2	78	5†	27	19	37	2.11	− 1.33	1.03	0.0	4	9	10	1	s.	Col. J. H. Burrow.
McMinnville	Warren	1,011	26	57.2	+ 9.0	81	5	24	19	40	2.90	− 0.84	1.23	0.0	6	16	12	2	s.	J. T. Sparkman.
Maryville	Blount	1,050	15	54.8	+ 6.6	80	7	23	19	40	0.88	− 2.45	0.46	0.0	3	22	7	1	w.	Mrs. F. E. Benedict.
Mountain City	Johnson	2,486	13	47.1	+ 4.8	74	5†	16	19	46	0.81	− 1.55	0.58	0.0	2	17	11	2	.....	E. E. Barry.
Nashville	Davidson	654	39	58.0	+ 9.3	81	5	28	18	33	2.58	− 1.27	1.06	0.0	5	12	9	9	s.	U. S. Weather Bureau.
Newport	Cocke	1,280	19	51.0	+ 4.7	75	14	24	19	33	0.75	− 2.07	0.50	0.0	2	24	4	2	w.	Dr. C. T. Burnett.
Palmetto	Bedford	770	16	58.2	+ 8.2	82	4†	24	18	42	1.58	− 1.43	0.73	0.0	4	18	11	1	s.	Mrs. Ross Woods.
Pinewood	Hickman	.....	3	56.0[b]	.....	85[b]	5	20[b]	18	50[b]	1.47[b]	.....	0.70[b]	0.0	4[b]	14[a]	10[c]	5[a]	s.	Miss Carrie Cash.
Pope	Perry	.....	13	56.4	+ 6.8	81	5†	21	23	52	2.05	− 2.44	0.85	0.0	4	23	7	0	s.	Miss Bessie Howard.
Rogersville	Hawkins	1,150	25	52.2	+ 6.0	80	5	21	19†	47	0.98	− 1.98	0.56	0.0	4	21	6	3	w.	Fred Beal.
Rugby	Morgan	1,410	22	52.3	+ 7.3	80	5	18	26	50	2.05	− 1.64	0.90	T.	5	20	2	8	s.	S. G. Wilson.
Savannah	Hardin	442	26	59.6	+10.1	80	6†	31	19†	34	2.74	− 1.10	1.50	0.0	4	22	0	8	.....	W. F. Bell.
Sevierville	Sevier	.....	4	50.8	.....	80	1†	18	20	48	0.68	.....	0.32	0.0	3	7	16	7	sw.	H. O. Eckel.
Sewanee	Franklin	2,000	15	55.4	+ 7.4	77	5	24	18	36	1.00	− 3.13	1.00	0.0	1	18	1	11	s.	University of South.
Sparta	White	920	4	53.2	.....	80	6†	25	19†	42	1.00	.....	0.75	0.0	3	20	5	5	w.	E. H. Hull.
Springdale	Claiborne	1,058	....	50.4	.....	79	1	19	25	48	1.88	.....	0.93	0.0	3	15	9	6	w.	Mrs. Lucy E. Breeding.
Springville	Henry	377	7	56.8	.....	83	5	23	18	46	3.40	.....	2.09	0.0	9	20	5	5	s.	H. A. Boden.
Tellico Plains	Monroe	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tullahoma	Coffee	1,075	21	56.2	+ 9.0	79	5	25	19	46	2.02	− 1.52	0.84	0.0	5	17	11	2	s.	R. T. Moore.
Waynesboro	Wayne	753	23	57.6	+ 9.3	80	4†	25	19	42	2.06	− 1.48	0.66	0.0	7	17	11	2	s.	H. C. Boyd.
Widersville	Henderson	.....	12	58.5	+ 8.9	80	5†	23	18	42	1.51	− 2.79	0.70	0.0	7	17	6	7	s.	W. R. Wilson.
Yukon	Lincoln	850	14	58.4	+ 7.8	82	1	26	18†	30	1.50	− 2.35	0.90	0.0	3	19	8	3	s.	W. P. Watson.
Kentucky.																				
Alpha	Clinton	.....	15	58.6	+ 9.6	79	5†	25	26	38	3.00	− 1.14	1.05	T.	4	16	5	9	s.	W. W. Hicks.
Anchorage	Jefferson	700	8	53.0[a]	.....	78[a]	7	22[a]	18	40[a]	2.18[a]	.....	0.73[a]	T.	7[a]	17	4	9	sw.	C. E. Barrett.
Bardstown	Nelson	637	13	55.0	+ 8.2	80	7	25	30	37	1.58	− 1.92	0.75	0 0	4	19	2	9	sw.	G. M. Talbott.
Beattysville	Lee	650	6	50.7	.....	82	13	19	25†	51	2.92	.....	0.92	T.	7	13	5	12	w.	G. W. Cann.
Beaverdam	Ohio	441	6	55.4	.....	83	5	25	18†	47	3.22	.....	1.34	0.0	4	21	1	8	sc.	T. S. Woodward.
Berea	Madison	1,070	8	55.3	.....	79	5†	21	25	45	2.41	.....	0.95	T.	6	14	11	5	sw.	C. F. Rumold.
Bowling Green	Warren	500	20	56.2	+ 9.3	88	12	25	24†	48	1.75	− 2.31	0.98	0.0	8	18	2	10	s.	Mrs. L. G. Causey.
Burnside	Pulaski	589	19	.....	.....	.....	.....	.....	.....	.....	3.32	− 0.41	1.68	0.0	5	17	9	4	n.	G. M. Estes.
Cadiz	Trigg	.....	7	60.2[a]	.....	83[a]	5	30[a]	18	44	2.02	.....	0.61	0.0	5	20	5	5	.....	John S. Lawrence.
Calhoun	McLean	397	6	57.6	.....	80	3†	24	18	43	2.67	.....	0.97	0.0	9	13	8	9	s.	W. A. Taylor.
Catlettsburg	Boyd	544	16	54.2[b]	+ 9.1	83[b]	14	22[b]	25	40[b]	1.50	− 1.82	0.40	T.	10	22	2	6	n.	Chas. N. Bruns.
Earlington	Hopkins	370	20	56.2	+ 8.3	81	3†	24	18	45	3.01	− 1.34	0.80	0.0	8	15	5	10	s.	J. B. Atkinson.
Edmonton	Metcalfe	600	18	54.6[a]	+ 8.3	79[a]	5	23[a]	19	44	2.75	− 1.15	0.82	0.0	6	16	5	9	s.	Miss Lee Ray.
Eubank	Pulaski	1,177	15	53.3	+ 9.6	79	6	23	25	43	2.54	− 0.50	0.99	0.0	6	16	5	9	se.	W. H. Henderson.
Falmouth	Pendleton	530	20	.....	.....	.....	.....	.....	.....	.....	2.11	− 1.62	0.74	0.0	6	14	8	8	s.	J. V. Oldham.
Farmers	Rowan	668	4	52.6	.....	81	14	19	25	46	2.00	.....	0.78	0.0	5	17	10	3	e.	Miss Gertrude Sorrell.
Frankfort	Franklin	560	19	54.0	+ 7.8	76	7	26	18	36	1.41	− 2.68	0.60	T.	7	10	6	14	sc.	Gustave Schaefer.
Franklin	Simpson	691	16	58.1	+10.1	82	5	25	24	38	2.17	− 1.83	1.05	0.0	3	9	12	9	s.	J. E. Newman.
Greensburg	Green	581	17	52.0	+ 7.2	81	7	22	30	50	2.69	− 1.02	0.90	0.0	7	17	0	13	se.	L. C. Alcorn.
Highbridge	Jessamine	762	7	.....	.....	.....	.....	.....	.....	.....	2.39	.....	0.84	0.0	6	18	2	10	.....	Miss Lulu Wood.
Hopkinsville	Christian	524	13	56.4	+ 8.4	86	5	25	18	40	3.60	− 0.65	1.10	0.0	8	20	1	9	s.	W. F. Randle.
Irvington	Breckinridge	.....	11	55.6	+ 9.6	78	7	26	24	35	1.74	− 2.00	0.74	T.	4	16	3	11	sw.	W. J. Piggott.
Leitchfield	Grayson	635	14	55.7	+ 9.9	79	7	25	24	38	2.70	− 1.30	1.11	0.0	5	16	4	10	s.	John E. Stone.
Lexington	Fayette	989	22	52.9	+ 8.2	77	6	25	18	33	1.96	− 1.52	0.82	T.	7	9	10	11	s.	U. S. Weather Bureau.
Loretto	Marion	681	12	54.8	+ 8.7	79	6†	21	30	43	2.29	− 1.31	0.72	0.0	8	16	7	7	.....	Loretto Academy.
Louisville	Jefferson	525	37	55.4	+ 9.1	78	6	28	4	34	1.73	− 2.45	0.63	T.	7	13	8	9	s.	U. S. Weather Bureau.
Marion	Crittenden	.....	15	57.0	+ 9.3	81	7	21	18	36	2.75	− 1.44	0.97	0.0	4	11	10	9	sw.	B. C. Paris.
Maysville	Mason	524	13	51.2	+ 6.4	80	13†	23	30	48	2.05	− 1.27	0.86	T.	8	18	3	9	se.	Mrs. M. D. Marsh.
Middlesboro	Bell	1,128	16	49.2	+ 3.4	72	6	22	26	41	1.36	− 2.70	0.75	0.0	4	23	5	2	.....	B. H. Perkins.
Mt. Sterling	Montgomery	930	20	52.0	+ 8.4	74	6	24	18	34	2.41	− 1.17	0.95	T.	7	14	6	10	se.	James O'Connell.
Owensboro	Daviess	479	13	55.6	+ 7.8	79	6†	25	18	38	2.09	− 1.51	0.60	0.0	8	16	2	12	s.	Henry S. Berry.
Owenton	Owen	700	13	54.2[d]	+ 8.9	77[d]	7	24[d]	18†	35[d]	1.59[d]	− 2.86	0.70[d]	0.0	3[d]	10	11	9	.....	J. T. Walker.
Paducah	McCracken	341	17	58.4	+ 9.6	77	5†	30	18	26	3.43	− 0.88	1.60	0.0	6	17	4	10	s.	W. R. Wright.
Pikeville	Pike	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.42	.....	0.70	0.0	5	11	6	13	.....	A. R. Williams.
Richmond	Madison	926	20	55.4	+ 9.8	80	6†	25	18	37	2.13	− 0.65	0.92	0.0	6	16	5	9	.....	I. W. Crooke.
St. John	Hardin	777	13	53.0	+ 7.3	78	6†	24	24	43	2.15	− 1.48	0.74	0.0	6	16	6	8	.....	Bethlehem Academy.
Scott	Kenton	.....	.....	54.4	.....	80	6	24	18†	36	1.53	.....	0.60	T.	9	12	9	9	s.	E. B. Wilson.
Shelby City	Boyle	1,087	15	53.4	+12.4	81	6	20	25	48	2.35	− 0.89	0.84	0.0	5	16	4	10	s.	W. E. Grubbs.
Shelbyville	Shelby	759	20	53.7	+ 9.7	78	5†	25	24	42	1.73	− 2.31	0.72	T.	6	6	14	10	s.	Dr. H. W. Preissler.
Taylorsville	Spencer	422	7	51.4	.....	77	7	23	30	39	1.38	.....	0.59	0.0	8	19	2	9	s.	E. D. Bourne.
Williamsburg	Whitley	939	12	52.1	+ 4.7	78	5†	22	25†	45	1.83	− 1.55	0.72	T.	5	22	4	4	se.	Mrs. Anna L. Adkins.
Williamstown	Grant	943	7	55.2	.....	79	6	31	18†	27	1.63	.....	0.45	T.	6	21	1	8	.....	Mrs. Sarah E. Carter.
Indiana.																				
Anderson	Madison	892	12	50.9	+ 8.8	77	6	22	24	34	4.24	+ 1.09	2.51	T.	11	16	5	9	sw.	W. H. Stanton.
Bloomington	Monroe	744	11	52 2	+ 7.6	79	6	24	24	37	3.71	+ 0.35	0.91	T.	13	16	1	13	sw.	E. E. Ramsey.
Bluffton	Wells	835	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. C. Dean.
Butlerville	Jennings	767	16	54.2	+11.8	80	6	23	24	33	2.25	− 1.60	1.03	T.	7	17	4	9	s.	C. F. Hole.

TABLE 1.—*Climatological data for November, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Indiana—Cont'd.																				
Cambridge City	Wayne	941	10	48.6	+ 8.5	77	6	21	24†	45	2.95	− 0.70	0.81	0.0	12	14	1	15	s.	Charles Lemberger.
Columbus	Bartholomew	632	18	51.2	+ 9.0	78	6	22	24†	41	3.10	− 0.58	0.74	0.0	9	13	5	12	sw.	John A. Perry.
Connersville	Fayette	769	20	52.5	+11.8	78	22	23	24†	48	2.31	− 1.57	1.05	T.	8	17	3	10	sw.	C. C. Hibbs
Delphi	Carroll	668	16	48.6	+ 9.8	74	13	21	24	43	3.44	− 0.17	0.87	T.	11	6	12	12	.....	R.L.Higginbotham & Son
Eminence	Morgan	782	....	47.8	.....	78	7	22	18	35	3.30	.....	0.80	T.	9	12	10	8	sw.	Dr. E. E. Kelso.
Evansville	Vanderburg	386	10	55.5	+10.2	77	5	26	18	31	2.86	− 1.25	0.70	0.0	8	7	13	10	s.	U. S. Weather Bureau
Farmersburg§	Sullivan	.....	....	53.1	.....	78	6	23	18	34	3.68	.....	1.55	0.0	8	20	0	10	s.	Maurice Yeager.
Farmland	Randolph	1,101	29	50.6	+10.7	74	14	23	24	37	3.72	+ 0.22	1.15	T.	8	9	3	18	sw.	W. J. Davisson.
Greenfield	Hancock	905	....	52.2	.....	76	6	24	24	29	3.20	.....	1.53	T.	7	5	18	7	se.	W. C. Goble.
Greensburg	Decatur	954	5	51.6	.....	74	7	22	17	31	1.61	.....	1.07	0.0	6	18	2	10	sw.	Charles H. Ewing.
Heltonville	Lawrence	.....	....	.....	.....	.....	.....	.....	.....	.....	1.69	.....	1.24	0.0	3	19	5	6	sw.	E. L. Palmer.
Huntingburg	Dubois	.....	....	.....	.....	.....	.....	.....	.....	.....	2.55	.....	.....	.....	.....	.....	.....	.....	.....	H. Dufendach.
Huntington	Huntington	741	11	48.8	+ 9.2	72	13	23	24	30	4.21	+ 0.51	1.80	T.	13	13	7	10	se.	Charles McGrew.
Indianapolis	Marion	822	33	51.0	+ 9.4	76	6	26	24	32	3.30	− 0.22	1.37	T.	12	10	8	12	s.	U. S. Weather Bureau.
Jeffersonville§	Clark	455	12	54.0	+ 8.8	79	14	26	24	36	1.92	− 2.14	0.59	0.0	7	12	10	8	s.	John C. Loomis.
Judyville	Warren	.....	....	49.6*	.....	74	6†	24*	24†	36*	4.29	.....	1.47	T.	11	13	3	14	s.	D. R. Warrick.
Kokomo	Howard	840	11	48.4	+ 7.7	72	11	21	24	38	3.86	+ 0.47	1.67	T.	9	12	8	10	ne.	John W. Doty.
Lafayette	Tippecanoe	617	22	50.5	+11.6	74	6	26	24	33	4.28	+ 1.04	0.97	T.	12	9	7	14	s.	W. J. Jones, Jr.
Logansport	Cass	620	17	50.0	+ 9.8	76	13	23	24	37	3.26	− 0.15	0.85	0.0	12	12	1	17	e.	Charles Massena.
Madison	Jefferson	460	11	54.2	+ 9.4	77	7	26	24†	34	1.92	− 1.37	0.80	0.0	7	15	9	6	sw.	J. Cooperider.
Marengo	Crawford	363	19	51.8	+ 6.8	76	6†	23	24†	40	1.92	− 3.58	.....	0.0	9	15	7	8	sw.	J. M. Johnson.
Marion	Grant	814	14	49.6	+10.4	73	13	21	24	31	3.53	+ 0.07	1.31	T.	10	12	9	9	sw.	James F. Hood.
Markle	Huntington	814	10	48.4	+ 8.9	72	13	19	24	42	3.90	+ 1.18	2.05	T.	7	9	14	7	sw.	I. S. Shideler.
Mauzy	Rush	980	21	50.4[b]	+10.2	79[b]	6	21[b]	24	38[b]	3.74	− 0.29	1.11	T.	9	13	8	9	sw.	E. Kirkwood.
Moores Hill	Dearborn	.....	....	53.0	.....	77	6	24	24†	33	1.54	.....	0.68	T.	8	18	2	10	sw.	W. S. Bigney.
Mount Vernon	Posey	410	15	55.8	+10.6	81	6†	25	18	41	3.56	− 0.82	1.18	0.0	8	15	0	15	s.	C. M. Spencer.
Paoli	Orange	611	5	53.4	.....	79	6	23	30	42	1.95	.....	0.63	0.0	10	15	9	6	sw.	James A. Gillum.
Princeton	Gibson	481	19	55.2	+12.3	79	6†	23	18	43	2.48	− 1.34	0.63	0.0	5	21	2	7	.....	Elisha Jones.
Richmond	Wayne	972	17	49.9	+ 9.3	74	14	23	24†	35	2.95	− 0.75	0.77	T.	9	10	11	9	.....	Walter Vossler.
Rochester	Fulton	775	....	48.0	.....	67	13	24	24†	27	4.09	.....	1.40	0.0	12	16	5	9	.....	J. P. Keith.
Rockville	Parke	722	15	51.6	+10.1	76	6	22	18	33	2.59	− 1.40	0.99	T.	6	12	8	10	s.	Dr. W. N. Wirt.
Rome	Perry	370	....	57.0	.....	82	6	26	30	48	2.45	.....	1.02	T.	7	15	7	8	sw.	Adam Anspach.
Salamonia	Jay	.....	....	49.1[b]	.....	73[b]	13	19[b]	24	32[b]	2.96	.....	1.57	T.	9	9	6	14	sw.	C. V. Skinner.
Salem	Washington	717	11	52.8	+ 8.3	77	6†	23	24	41	2.26	− 1.68	0.70	T.	9	13	9	8	sw.	E. S. Allen.
Scottsburg	Scott	570	10	53.6	+ 9.1	76	7	26	18	34	2.05	− 1.38	0.70	0.0	5	11	10	9	sw.	F. H. Park.
Seymour	Jackson	610	14	53.7	+11.5	80	6	22	18	39	1.39	− 2.39	0.51	0.0	6	9	12	9	se.	J. R. Blair.
Shelbyville	Shelby	.....	....	51.1	.....	76	6	21	18	34	3.26	.....	1.31	T.	12	10	14	6	s.	B. F. Crouch.
Terre Haute	Vigo	498	11	53.4	+ 9.7	75	7	23	18	31	3.56	+ 0.33	1.72	0.0	9	17	5	8	sw.	R. G. Gillum.
Veedersburg	Fountain	612	....	52.0	.....	76	6	25	17	36	2.89	.....	1.17	T.	10	18	5	7	s.	L. A. Culver.
Vevay	Switzerland	525	19	54.2	+ 9.4	78	14	26	18	34	1.60	− 2.20	0.60	0.0	5	9	9	12	se.	Miss Frederica Boerner
Vincennes	Knox	431	10	52.2	+ 8.2	78	6†	21	30	40	3.65	− 0.11	1.10	T.	7	16	2	12	s.	G. V. List.
Washington	Daviess	484	7	54.4	.....	79	6	26	18	35	2.88	.....	0.85	0.0	10	15	3	12	se.	H. B. Turrell.
Whitestown	Boone	.....	....	49.3	.....	72	6	21	24	30	2.87	.....	1.32	0.0	9	11	13	6	w.	C. A. Stevenson
Winona Lake	Kosciusko	.....	....	48.4	.....	74	13	22	24†	30	4.55	.....	1.33	0.4	13	6	18	6	ne.	Rev. A. A. Young.
Worthington	Greene	526	20	52.6	+10.4	77	7	27	30	35	2.85	− 1.30	0.80	T.	12	8	13	9	sw.	C. A. Geckler.
Illinois.																				
Albion	Edwards	531	17	53.6	+ 9.6	80	7	21	18	36	3.10	− 0.48	1.18	0.0	6	15	8	7	s.	B. F. Michels.
Cairo	Alexander	359	33	52.2	+ 9.8	77	5	21	18†	33	3.14	− 0.13	1.35	0.0	9	9	11	10	s.	U. S. Weather Bureau.
Charleston	Coles	720	18	58.0	+ 9.6	83	6	24	18	42	3.83	.....	1.08	0.0	7	17	5	8	s.	Jacob B. Dazey.
Equality	Gallatin	421	9	54.8	+ 9.1	83	7	20	18	44	3.60	+ 0.30	1.37	0.0	5	17	1	12	s.	Dr. L. W. Gordon.
Fairfield	Wayne	495	18	53.8	+11.1	80	6	20	18	40	4.28	+ 0.85	0.90	0.0	8	14	6	10	se.	George A. Tromly.
Flora	Clay	495	23	56.0	+ 9.0	83	5†	24	18	43	4.58	+ 0.30	2.02	0.0	6	13	7	10	sw.	Jos. S. Peak.
Golconda	Pope	500	30	50.1	.....	74	11	24	23†	32	3.47	.....	1.53	T.	10	14	7	9	.....	Dr. D. Lawrence.
Hoopeston	Vermillion	715	7	55.2	+10.2	80	7	23	18	41	3.44	− 0.14	1.29	0.0	7	16	7	7	sw.	S. F. Hoskinson.
McLeansboro	Hamilton	462	26	52.4	+10.2	79	5†	21	18†	41	4.65	+ 1.31	1.30	0.0	7	10	7	13	s.	C. C. Judd.
Martinsville	Clark	630	20	.....	.....	.....	.....	.....	.....	.....	2.60	− 1.18	0.86	0.0	9	16	0	14	se.	G. M. Daugherty.
New Burnside	Johnson	556	14	56.0	+ 8.3	79	3†	22	18	35	4.09	+ 0.47	0.92	0.0	5	16	8	6	s.	George Harris.
Olney	Richland	486	19	54.9	+10.6	82	5	22	18	39	4.13	+ 0.56	1.01	0.0	8	10	11	9	s.	Victor E. Phillips.
Palestine	Crawford	500	26	53.2	+10.2	77	5†	23	18	36	3.70	+ 0.01	1.50	0.0	9	15	5	10	sw.	Alexander Charley.
Paris	Edgar	600	12	50.8	+ 8.2	74	7	22	18	34	3.24	− 0.12	1.22	0.0	11	13	9	8	sw.	H. W. Twyman.
Philo	Champaign	700	24	49.6	+ 9.9	75	7	20	18	35	2.96	− 0.16	0.91	0.0	5	13	8	9	sw.	H. A. Burr.
Rantoul	....do	768	18	50.5	+10.5	78	5	20	18	37	3.51	+ 0.79	1.12	T.	8	18	3	9	sw.	Wm. Breiner.
Robinson	Crawford	500	9	55.3	.....	79	4	22	17	41	3.86	.....	1.33	0.0	9	19	5	6	sw.	A. P. Woodworth.
Sumner§	Lawrence	459	....	53.0	.....	76	7†	24	18	37	2.66	.....	0.91	0.0	7	14	1	15	s.	O. A. Fyffe.
Tuscola	Douglas	644	10	50.7	+ 9.2	78	6	19	18	37	2.89	+ 0.34	0.68	0.0	10	10	6	14	s.	E. W. Lester.
Urbana§	Champaign	725	7	49.8	.....	74	7	19	18	32	3.45	.....	1.20	0.0	7	4	21	5	sw.	Prof. J. G. Mosier.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 3, Ohio Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New York.																																	
Allegany	Allegheny		.13	.03	.33	.04			.26		.01				.02	.09	.01		.02	.01		.36	.03	T.			.12			.01			1.47
Bolivar	do		.04	.03	.42	T.			.19							T.	.15	.20	.08	.03		.05	.39	.08			T.						1.66
Franklinville	do		.02	T.	.34	.01			.20							.06	.14	.20	.10	.04		.18	.24	T.			T.						1.53
Jamestown	do																																
Olean‖	do			.06	.04	.34			.12	.14						.62	T.	.20	.12	.02			.48	.10									1.64
Maryland.																																	
Deer Park	Youghiogheny				.13		.24		.12	.29									.05					.23									1.06
Grantsville	do								.53										.20				.10										0.83
Oakland	do		.11	.02			.28		.13	.18	.05							.15	.12					.25	.02				.03				1.34
Pennsylvania.																																	
Aleppo	Ohio			.15			.18		.15		T.					.17		T.	T.				.22	.18					.02			1.07
Baldwin	Allegheny		.15	.10					.20							T.	.35	.20	.05	.02		T.	.42									1.49
Beaver Dam	Ohio		.13	.08	T.		.62		.02	.22							.35	.09	T.	.03	T.		.19	.12					T.				1.25
California	Monongahela																																
Clarion	Allegheny																																
Claysville	Ohio		.12	T.	.04		.10		.21	.02	.02					.05	.06	.06	T.	T.			T.	.09									0.77
Confluence	Youghiogheny		.16		.10				T.	.26	T.						T.	T.	T.	T.				.20					T.				0.72
Davis Island Dam	Ohio		.07	.03	T.		T.			.17	.02	.01					.35	.04	T.	.04	T.		.05	.05					T.				0.83
Derry Station	Allegheny		.22				.12		.18		T.						.14	T.		T.			.12	.21									0.99
Franklin	do		.05	T.	T.				.42	T.						.05	.35	.04	T.	.05		.55	.15										1.66
Freeport	do		.14	.04			.25		.02	.25							.40	.10	T.	.08	T.		.06										1.34
Greensboro	Monongahela		.06		.02		.01	.22		.14	.04	T.					.04	.01	.01	T.			.04	.10									0.69
Greensburg	Youghiogheny		.09	.02					.18		.02					.01	.13	T.	T.	T.			.05	.12					T.				0.62
Greenville	Ohio		.12	.05	T.				.52	T.	T.	T.	.02			.05	.38	.37	.12			.13	.47	.18					.08				2.49
Grove City	do		.07						.33	.01			.02			.15	.26	.11	.03			.15	.20	.06					T.				1.39
Herrs Island Dam	Allegheny		.09	T.	T.		T.			.21	.01	.01					.28	.09	T.	.02	T.		.07	.07						T.			0.85
Indiana	do		.12						.40							.04	.38	T.	T.				.14										1.08
Irwin	Monongahela								.27	.01						.03	.21	T.	T.			T.		.18					T.				0.70
Johnstown	Allegheny		.15	T.			.16			.32	T.					.06	.09	.03	.01				.12	.11					.01				1.06
Lock No. 4	Monongahela		.10	T.	.03					.15	.05						.08	T.	T.	T.	T.		.12	.08									0.61
Lycippus	Allegheny		.18		.01				.26	.03						.03	.07	T.	.05				.20	.22						T.			1.05
Parkers Landing	do		.04	.04	.02				T.	.24	.04					T.	.24	.30	.12	.08			.44	.04						T.			1.60
Pittsburg	Ohio	T.	.08	T.		T.	T.		.27	T.	T.	T.				T.	.30	.04	.01	.02		.01	.10	.01					T.				0.84
Saegerstown	Allegheny																																
St. Marys	do		.38		.21				.56							.26	.20	.20	.08			.22	.18										2.29
Saltsburg	do		.10	.01	.01		.12		T.	.36	T.	.01					.30	.01	.02	T.	.04		.06	.10					T.				1.14
Skidmore	Ohio						.35		.20							T.	.35	.10	T.			.40		.10									1.50
Somerset	Youghiogheny			.05					.26	.20		.21				.12		.20						.25					.06				1.35
Springdale	Allegheny		.09	.01			.09			.20							.35	.07	.05	.03			.07	.06					.01				1.03
Uniontown	Monongahela		.12	.05			.13		.11		.02					.07	T.	.02						.12									0.64
Warren	Allegheny		.10			.08			.54									.64	.38				.66										2.40
West Newton	Youghiogheny		.08	T.	.04					.16	.02	T.					.14	T.	T.	.01	T.		.16	.04									0.65
West Virginia																																	
Arbovale	Great Kanawha																																
Bancroft‖	do		.59				.05			.40	.32	.11					.05	.06	T.				.04	.39					.06				2.07
Beckley	do								.58									T.						.46						.12			1.16
Ben's Run	Ohio		.30				.03		.05		.25					.11		.10						.26									1.10
Bluefield	Great Kanawha																																
Brandonville ‖	Monongahela		.17		.05		.23			.28	.09						.01	T.		.08			.03	.20				.03					1.17
Buckhannon‖	do		.22						.40	1.00	.10							T.	T.					.50									2.22
Cairo	Little Kanawha		.40	.05			.08			.35	.09							T.	T.				.08	.30									1.35
Central Station	Middle Island Creek	T.	.21	T.		T.	.03		.12	.11	.07					.01		.07	T.				T.	.27					T.				0.89
Charleston‖	Great Kanawha		.30				.03			.60	.47	.03				.20		.10		T.			.06	.50					.10				2.39
Creston‖	Little Kanawha		.32				.05	T.		.25	.33	.11											T.	.20					T.				1.26
Cuba	Sand Creek	.04	.31			T.				.41	.17					.02		.09					.02	.36					T.				1.42
Davis‖	Monongahela		.10							.50						.20							.20		.05				.05				1.10
Doane	Big Sandy																																
Elizabeth	Little Kanawha																																
Elkhorn	Big Sandy								.35	.05								.41	T.				.38	.02					.28				1.49
Elkins	Monongahela		.14	T.		.02	.09		.30	.87	.11		T.			T.	.02	.06	.03			T.	.09	.28	T.				.30				2.31
Fairmont‖	Monongahela		.20		T.		.05		.15	.05	.05						.02	.02					.04	.14					T.				0.72
Glenville‖	Little Kanawha		.40				T.			.40	.34							.15					.10	.30									1.69
Grafton	Monongahela		.28	.02			.05		.21	.05	.10					.03		.08						.27					.14				1.23
Green Sulphur Springs	Great Kanawha																																
Hinton‖	do		.10							.28	.34							.06	.01	.01			.28						.06				1.14
Huntington‖	Ohio		.26							.18	.30	.02						.10					.44						.06				1.36
Lewisburg	Great Kanawha		.06				T.			.51	.03							.05	T.														0.65
Logan	Guyandotte		.20							.45									T.					.95					.10				1.70
Lost Creek	Monongahela	T.					.20		.13	.10	.22					T.		T.	T.				.08						.20				0.93
Madison	Great Kanawha					T.	T.		.15	.18							.08			T.	T.	.61						.17					1.19
Mannington	Monongahela		.14		.01		.05	.01	.05	.01	.09					.03		.04	.62			.02	.22						.02				0.71
Marlinton	Great Kanawha						.20			1.00	.30							.10	T.				.30										1.90
Morgantown	Monongahela	T.	.20	T.	T.		.16		.17		.05							T.	T.				.22						.03				0.83
Moundsville	Ohio		.22	T.			.07		.11	.03	.12					.10	.01	.03	T.	T.		.05	.19	T.					.02				0.95
New Cumberland	do		.25	T.		T.			.25	T.						T.	.35	T.	T.	T.		.10	.30										1.25
New Martinsville	do		.22						.13		.08					.05		.04	T.	T.			.32						.01				0.85
Nuttallburg	Great Kanawha									.80								*	.10			1.35						1.27				3.52
Parkersburg	Ohio	.01	.13	T.		T.	.04		T.	.10	.05					T.	.05	T.	T.			T.	.17						T.				0.55
Parsons	Monongahela							.28		.32	T.	.10							T.	T.				T.										0.70
Philippi	do		.25		.02		.06	.01	.17	.06	.08							.06	.02				.04	.26	T.				T.	.10			1.13
Pickens	do						.30		.29	2.01	T.							.15	.27				.68	.15									3.85
Pineville	Guyandotte									.12		.12	T.			.03	.17								.42	.02								0.88
Point Pleasant‖	Ohio		.26				.04			.18	.40	.16				T.		.08					.06	.33					T.				1.51
Powellton	Great Kanawha		.21				.12		T.		.33							.24	T.					.17					.39				1.46
Princeton	do								.34								.10	.10					.15										0.69
Robertsburg‖	do		.30				.05			.20	.41	.04				T.	T.	.06						.28					.04				1.38
Rowlesburg‖	Monongahela		.10	T.	.01			.10		.44	.48						T.	.20	.10	T.			.02	.28					.10	T.			1.83
Ryan	Great Kanawha	.02	.41				.04		.07	.34	.22					T.		.07	T.				.02	.31					.08				1.58
St. Marys‖	Ohio		.30	.05			T.	T.		.13	.18		.05				.10		.10					.25									1.16
Smithfield‖	Fishing Creek		.15	.09			.06										.33	.27	T.				.17										1.07
Spencer‖	Little Kanawha		.44				T.	T.		.16	.30	T.					T.	T.				T.		.39									1.29
Sutton	Great Kanawha	.20							.46	.50	.20						T.	T.	T.			T.	.60										1.96
Terra Alta	Monongahela						.60			1.10						T.		.12	.05			T.	.24										2.11
Union	Great Kanawha									.20	.40								T.					.25					T.				0.85
Valley Fork	do								T.			1.20																					1.20
Webster Springs	do						.25		.20	1.40									.20				.15	.35					.15				2.70
Wellsburg	Ohio		.25	T.			.05		.39	.01	.05					.06	.20	T.	T.	.03			.14	.15									1.33
Weston‖	Monongahela		.40							.40	.90							.20	.10	.06				.20	.10		.04						2.40
Wheeling‖	Ohio		.14		T.		T.	.34		.22	.04	T.				T.	.10	.10	T.	T.	T.		T.	.18					T.				1.12
Williamson‖	Big Sandy		.04							.22	.12							.12						.72					.02	T.			1.24
Ohio																																	
Amesville	Ohio	T.	.47						T.	.06	.08					.08								.74									1.43
Bangorville	Muskingum	.06	.40	T.		T.	.03		.45	.03	.04		.04			.02	.52	.22	.15			.10	.57	.44					.05				3.12
Bellefontaine‖	Miami	.54	.06			.07		T.	.35	T.	.04	T.	T.				.61	.05				.59	.71	.68				.26	.03				3.99

TABLE 2.—*Daily precipitation for November, 1909. District No. 3*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Ohio—Cont'd.																																	
Bladensburg	Muskingum		.65	T.			T.		.15	T.							.25	.50	T.					.60								2.15
Cadiz	Ohio	.02	.36	.02		T.	.16		.10		T.					.05	.20	.08	T.	.02		T.	.50	.14					T.			1.65
California	do																											T.					
Cambridge	Muskingum		.36						.11							T.	.16	.10					.58									1.31
Camp Dennison	Miami	.02	.26						.02	.04	.01					.04	.52	.08	T.				.53	.20					.03				1.75
Canal Dover	Muskingum	T.	.25	T.		.05	.10		.14		T.					.47	.18	T.						.37	.24					.02			1.82
Canton[1]	do	.10	.21						.18	.02	*	.01		T.		.04	.57	.05	.05	.02		.39	.48	.06									2.18
Cardington	Scioto																																
Chillicothe[1]	do										.26					.31							.83									1.40
Cincinnati	Ohio	.31							.01	T.	T.				.01	.11	.44	T.				T.	.54						T.			1.42
Circleville[1]	Scioto	*	.68			T.				.05						.10	.08		T.				.14	.60								1.65
Clarington	Ohio	T.	.30	.02			.07	.05	.11	.05	.11					.07	.02	.06	.02				.17	.23					.05				1.33
Clarksville	Miami																																
Columbus (1)	Scioto	.35	T.	T.		.02	.17	T.	.04	T.	.02	T.				.03	.68	.01	T.	T.		.06	.28	T.									1.66
Columbus (2)	do	.21	.11				.08	.03	.03	T.						T.	.70	.13	T.			T.	.48						T.				1.77
Columbus Reservoir	do	*	.44				.05	T.	T.	T.	T.		T.			T.	.35	.27	T.			T.	*	.49									1.60
Coshocton[1]	Muskingum		.42	.01				.09	.10	.12							.12	.20	.16				.26	.20									1.68
Dayton (1)[1]	Miami	.28	.02					.07	.07	T.			T.		T.	.01	.90	.01	.01			.03	.58	T.					.02				2.00
Dayton (2)[1]	do		.32	.01					.05	.03						.01	.33	.57	T.				.14	.43					.01				1.90
Delaware	Scioto	.70	.06	T.		T.	T.	.06	.25	T.	.02	T.	.02			.02	.68	.10	T.	T.		.05	.83	.03					T.	T.			2.82
Demos	Ohio		.30	T.			.15		.21	T.	.05					.08	.07	.04					.08	.22					.02				1.22
Frankfort	Scioto		.32							.40							.23	.25						.60									1.80
Garrettsville	Mahoning	T.	.33	T.			.13		.62				.06			.07	.40	.23	.22			.24		.23					.04				2.57
Granville[1]	Muskingum	.06	.44	T.		T.			.11		.05					.03	.48	.23	T.			T.	.20	.24									1.84
Gratiot	do	.02	.52	T.		T.	T.		.05		.02							.18	T.							T.							0.79
Green	Ohio		.23														*	.53					T.	.40					*	T.			1.16
Greenhill	Muskingum	T.	.32	T.			T.		.22	T.						.05	.37	.10	T.	.03		.28	.23	.13									1.73
Greenville[1]	Miami	.21						.38	.30						.03	.15	.74	.05				.05	1.78						.07				3.76
Hillsboro	Scioto	.02	.44						T.	.11	T.					.05	.35	.65					.67	.14									2.43
Ironton	Ohio		.22							.30	.40							.21						.48						.03			1.64
Jacksonburg	Miami	.52						.05	T.	T.	T.				.04	*	.74					.20	.54						.04				2.13
Kenton	Scioto	.04	.38			T.			.29				.02			.10	.40	.18				.04	.91	.24									2.60
Killbuck	Muskingum	T.	.60	T.		T.		.39		.03							.56	.41					.61										2.60
Lancaster	Scioto	T.	.56	T.		T.			T.	T.	T.					T.	.05	.27	T.			T.	.45	.15					T.				1.48
Lawshe	Ohio	T.	.30							.50	.09												.31	.50					.06				1.76
McConnelsville	Muskingum	.02	.49	.02		T.	.06		.09	.13	T.					.04	.02	.04					.03	.66									1.60
Marietta	Ohio	.02	.30				.12		.02	.04						.07	.01	.06					.03	.30					.01				0.98
Marion	Scioto	T.			T.			.02	.43				T.			.09	.59	.28	T.			.53	.36	.28									2.58
Milfordton	Muskingum	.05	.39	T.		T.			.25	T.	T.					*	.50	.10				.08	*	.80									2.17
Milligan	do	.03	.44						T.	.11	.03					.04		.10															0.75
Millport	Ohio		.25						.15							.05	.30	.11	T.	.04		.05	.48	.15					T.				1.58
Nellie	Muskingum	.08		.45			.10	.05		.10						.08		.50	.05				.05	.10	.30								1.86
New Alexandria	Ohio		T.	T.			T.		.40		T.							T.		T.			.65	T.									1.05
New Berlin	Muskingum		.44						.23							.05	.50	.20	.10	.03		.38	.30	.33					.02				2.58
New Richmond	Ohio																																
New Waterford	do			.27			.05		.22				T.			T.			.15			*	1.00										1.69
North Lewisburg	Scioto																																
Orangeville	Mahoning																																2.11
Pataskala	Scioto	.08	52	T.		.01	.05		.16		.03					.02	.42	.21	.01	T.		T.	.28	.32									1.30
Philo (1)	Muskingum	T.	.43	T.			.12		.07		T.					.04	.03	.16					T.	.45									1.27
Philo (2)	do	.04	.43	T.		T.	.04		.12		.02					.02	.04	.05					T.	.51						T.			1.77
Plattsburg	Miami		.65			T.		T.	.06								.61	T.				T.	.45									1.53
Pomeroy	Ohio	.07	.35				.03			.39	.13					T.	T.	.09						.47									1.73
Portsmouth	do	*	.39						*	.23	.19	.01						.18				*	.05	.65					*	.03			2.75
Rittman	Muskingum		.49			T.			.42							T.		.61	T.			.44	.55	.24						T.			3.34
Shenandoah	do	.37	.04				.07	.05	.61				.06			.07	.70	.08				.20	1.00	.03					.06				2.94
Sidney	Miami	.10						.05	.29						*	.02	.65					.05	1.75	T.						.03			1.17
Somerset[1]	Muskingum	*	.49	.03		*	.06		*	.02	.04					.01	.11	.35	T.			*	T.	.06									2.20
Springfield	Miami	.40	T.					T.	.13		.01					.01	.86	.15				.05	.59	T.						T.			1.31
Summerfield	Ohio	T.	.44	.01		T.	.02		.08		.07					.09		.12	.01	T.			.02	.40						.05			1.22
Thurman	do	T.	.27								.27					T.		.20					T.	.50									2.78
Urbana	Miami	.62					.02	T.	.25							*	.86	.20				.02	.51	.30									2.62
Warren	Mahoning		.18						.60							.10	.44	.11	.23	.04		.42	.46	.04									1.74
Waverly[1]	Scioto	.01	.33			*	.01		.01	.34	.06					T.	.03	.10				*	.02	.80					*	.03			1.83
Waynesville	Miami		.30							.35						.05	.53	.05				.50	.05										2.91
Wooster	Muskingum	.05	.34	.02			.19		.32				T.			T.	.52	.28	T.	T.		.33	.49	.37									1.97
Youngstown[1]	Mahoning	.20					.23		.07	.22						.06	.39	.18	.06				.34	.22									1.23
Zanesville[1]	Muskingum	*	.40	T.	T.	*	T.		*	.08	.01	T.				T.	.12	.02	T.				.20	.37	T.					.03			
Virginia.																																	
Big Stone Gap	Tennessee	T.	.05						.40	.03								.58						.80						T.			1.86
Blacksburg	Kanawha		.01							.20									T.					.27									0.48
Burks Garden	Tennessee		T.							T.	T.													.45						T.			0.45
Elk Knob	do		.07						.26	.13	.02							.55						.51	T.								1.54
Galax	Kanawha																																
Ivanho[1]	do			T.						.22	T.	T.						T.						T.									0.44
Marion	Tennessee																							.36									0.36
Max Meadows	Kanawha			.06					T.	.18	.17													.15									0.56
Mendota[1]	Tennessee		.08							.36	.09							.24						.40									1.17
Radford[1]	Kanawha									T.	T.													.11									0.11
Speers Ferry[1]	Tennessee		.24							.36	.16							.20						.16									1.12
Wytheville	Kanawha		.05						T.	.18	.17				.01			.02	T.					.14									0.57
North Carolina.																																	
Andrews	Tennessee		.04															.52						.61									1.17
Asheville	do	T.	.01							.01								.01	T.					.04									0.07
Banners Elk	do		T.						T.	T.	.02							.10					.46										0.58
Brevard	do									.05	T.						.06							.36									0.47
Bryson City[1]	do																	.39						.48									0.87
Hendersonville	do		.03							.08	.10						.12							.24									0.57
Hot Springs	do																	.06						.29									0.35
Jefferson	do																																
Marshall	do																							.22									0.22
Murphy[1]	do														.20			.50															0.70
Rock House	do	.04						T.	T.		T.						.57						.50										1.11
Sunburst	do																																
Waynesville[1]	do																							.10									0.10
Georgia.																																	
Diamond	Tennessee	T.															.06	.55					*	.51									1.08
La Fayette	do																.37						.70										1.07
Alabama.																																	
Albertville	Tennessee																	.40						.50									0.90
Bridgeport	do																	.54						1.35									2.35
Decatur	do									.11	.35																						1.67
Florence	do	.28								.33							.51	.09					.17	.29									1.17
Guntersville	do		.01															.58						.59									

TABLE 2.—*Daily precipitation for November, 1909. District No. 3*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Alabama—Cont'd.																																	
Madison	Tennessee	.05								.21							T.	.53					.90										1.69
Riverton	do	.22								.40	.04			.04	T.			.56						.54									1.80
Scottsboro	Tennessee								T.		T.						T.	.50						.66									1.16
Tuscumbia	do	.18								.40								.59						.51									1.68
Tennessee.																																	
Ashwood	Tennessee	T.								.75							.55						.30										1.60
Benton	do	.02					T.										T.	.34						1.40									1.76
Bird's Bridge‖	do																							.34	.04								0.38
Bluff City‖	do									.16														T.									0.16
Byrdstown	Cumberland						T.		.04	.31						T.	.40	.35				T.	.79	.17									2.06
Carthage‖	do	.02	.02							.30	.05							.93					T.	1.64									2.96
Center Point	Tennessee						T.			.08	T.						.37	.72						.71									1.88
Cedar Hill	Cumberland	T.					.05		.05	.25					T.		1.00						.80	T.									2.15
Celina‖	do	T.								.50	.05	.25						.95						.72									2.47
Charleston‖	Tennessee	T.									T.						T.	.20						.50									0.70
Chattanooga	do	.03									T.						.42						.60	T.									1.05
Clarksville	Cumberland	.10					T.	.01	.10	.23					.05	.15	1.15					.03	.70										2.52
Clinton‖	Tennessee									.75	.08							.85						.55									2.23
Dandridge‖	do																	.10						.36									0.46
Decatur	do	.05															T.	.38						.53									0.96
Dickson	Cumberland						.04			.26					.05		.61						.81										1.77
Dover	do	T.					T.		.36	.25					T.	.91	.87					T.	.70										3.09
Dunlap	Tennessee	.04								.12													.08	.57									0.81
Elizabethton‖	do								.20	.03							.02							.70									0.95
Erasmus	Cumberland	.02							.05	.09							.34	.46					.38	.77									2.11
Florence	do								T.	.64							T.	.61					T.	.50									1.75
Franklin	do	T.					T.	T.	T.	.72	.13						.44	T.					.85	.05									2.19
Hall's Hill‖	do		.05							.24	.15							.92						.84									2.20
Harriman	Tennessee								.54	.02							.71						.69										1.96
Hohenwald	do	.22								.36					T.		1.38						1.09										3.05
Iron City	do	.25					T.			.30	.13				T.		.21						.27	.28									1.44
Johnsonville	do	.06					.08		.02	.10					.06	.08	.66					.78												1.84
Jonesboro	do																																
Kingston‖	do		.04								.04							.87						.41									1.36
Knoxville	do	T.	.13				T.		.02								.49						.27	T.									0.91
Lebanon	Cumberland	.04					T.		T.	.44							T.	.60					.25	.50									1.83
Lewisburg	Tennessee	.09					T.			.35							.52						.99	.03									1.98
Loudon‖	do									T.								.30						.70									1.00
Lynnville	do	.18								.55							.35						1.03										2.11
McGhee‖	do																	.26						.43	.02								0.71
McMinnville	Cumberland	.11								.13	.01							1.23					.42	1.00									2.90
Maryville	Tennessee	T.	.09															.33						.46									0.88
Mountain City	do									.23														.58									0.81
Nashville	Cumberland	T.							T.	.84	.23				T.		1.06						.43	.02									2.58
Newport‖	Tennessee																	.25						.50									0.75
New River‖	Cumberland										.44							1.01						.72									2.17
Palmetto	Tennessee	T.								.30							.43	.12					.73	T.									1.58
Pinewood	do	.07					T.			.30					T.		.40						.70										1.47
Pope	do									.40					.20		.85						.60										2.05
Rogersville‖	do		.06							.14	T.							.22						.56	T.								0.98
Rugby	Cumberland								.12	.08							.90						.35	.60									2.05
Savannah	Tennessee								1.50						.34			.50					.40										2.74
Sevierville	do		.15															.21						.32									0.68
Sewanee	do																						1.00										1.00
Sparta	Cumberland	T.							.15	.10								.75															1.00
Springdale	Tennessee	T.								.93							.47							.48									1.88
Springville	do	.11					.05		.30	.35					.07	1.05	1.04	.01				T.	.42										3.40
Tazewell‖	do		.08							.25								.53						.40									1.26
Tellico Plains	do																																
Tullahoma	do	.17							T.	.45	T.							.52					.04	.84									2.02
Walling‖	Cumberland		.01						T.	T.	.10						1.10							1.30	T.									2.51
Worsham‖	do	.04								.90	.15							.65					.40											2.14
Waynesboro	Tennessee	.39					T.			.33	.11				.05		.66						.48	.04							T.		2.06
Wildersville	do	.14					.01		T.	.20				.11	.05		.70						.30										1.51
Yukon	do	T.							.10									.90					T.	.50									1.50
Kentucky.																																	
Alpha	Cumberland	T.							.15	.95							1.05	T.					.85	T.									3.00
Anchorage	Ohio																																
Bardstown‖	Green	T.	T.							.35	.09						T.	.39				T.		.75									1.58
Beattyville‖	Kentucky									.86	.26	.14					.20	.42	.12				T.	.92									2.92
Beaverdam‖	Green	T.						T.			1.34						.48	.65						.75									3.22
Berea	Kentucky	T.	.40				T.	.04	.40	.02						T.		.60	T.				.95							T.			2.41
Bowling Green‖	Green	.05						.04		.47	.05					T.	.02	.08					.06	.98									1.75
Burnside‖	Cumberland		.02						1.68	.10								.78					T.	.74									3.32
Cadiz	do	.14							.31	.51							.61						.45										2.02
Calhoun	Green	.05					T.	.10	.08	.71	.01				T.	.22	.52	.01				T.	.97							T.			2.67
Catlettsburg‖	Big Sandy		.22							.16	.38	.10					.02	.14	.02				T.	.40							.04	.02	1.50
Earlington‖	Green	.03						.63		.80	.04						.18	.42						.58									3.01
Edmonton	do							T.	.10	.55	.40							T.	.76			.12	T.	.82									2.75
Eubank‖	Cumberland									.33	.10	.29						.76					.07	.99									2.54
Falmouth‖	Licking		.10							.40	.24						T.	.74					.18	.45									2.11
Farmers	do	T.	.33							.37						T.	.50		T.		.78									.02			2.00
Frankfort‖	Kentucky	*	.24						*	.29	.05	T.				.02	.02	.19	T.				*	.60						T.			1.41
Franklin	Green						T.		T.	.31						T.	1.05					T.	.81										2.17
Greensburg‖	do		.04							.57	.28	.12						.90					.13	.65									2.69
Highbridge‖	Kentucky		.62							.23	.07	.08						.55						.84									2.39
Hopkinsville‖	Cumberland	.12							.60	.05					.08	1.10	.85					.05	.75										3.60
Irvington	Ohio								T.	.21	T.					.18	.74	T.					.61										1.74
Leitchfield	Green	T.							*	1.11						*	.74						.85										2.70
Lexington	Kentucky	.21							.03	.16	.06					T.	.61	T.				.07	.82							T.			1.96
Loretto	Salt	.29							.08	.38		.10				.04	.55	.13					.72										2.29
Louisville	Ohio	.03							.38	.25	T.				.03	.13	.37	T.				T.	.54							T.			1.73
Marion	do	T.					T.		.97							.84	.38						.56										2.75
Maysville‖	do		.44							.27	.20	.02						.18	T.				.06	.86						.02			2.05
Middlesboro	Cumberland								.05	.16								.75						.40										1.36
Mt. Sterling‖	Licking		.43							.27	.11						.11	.46					.08	.95						T.			2.41
Owensboro‖	Ohio	.05						.13		.60	.20					.15	.24	.20						.52										2.09
Owenton	Kentucky																																
Paducah‖	Ohio	.15							.10						T.	1.60	.50	.60						.48										3.43
Pikeville‖	Big Sandy									.40	.12	.12												.70						T.	.08			1.42
Richmond‖	Kentucky		T.							.26	.16	.16					T.	.62					.01	.92										2.13
St. John‖	Salt		.04							.45	.30			T.		T.	.12	.50	T.	T.		T.		.74										2.15
Scott	Licking	.01	.05						T.	.10						.02	.60	.05					.38	.31						.01				1.53
Shelby City‖	Kentucky		.11						T.	.49	.21					T.	.70							.84						T.				2.35

TABLE 2.—*Daily precipitation for November, 1909. District No. 3*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Kentucky—Cont'd.																																	
Shelbyville‖	Salt		.37							.21	.09						.03	.31	T.					.72								1.73
Taylorsville	do	.03						T.	.04	.19						.10	.31	.07					.59	.05								1.38
Williamsburg ‖	Cumberland		.13							.16	.13							.69						.72								1.83
Williamstown‖	Licking		.30							.29	.10						.04	.45		T.			.45							T.		1.63
Indiana.																																	
Anderson	West Fork, White	.16	.03					.44	.04		T.		.05	T.	.05	.16	.61	T.				.08	2.51	T.		T.				.11		4.24
Bloomington‖	do	.09	.18					.33	.04	.08	.02		.03	.06	T.	.38	.19	.91	T.			T.	.57	.83								3.71
Bluffton	Wabash																															
Butlerville	Muscatatuck	.32						.06	.07	.05					T.	.08	.64	T.					1.03									2.25
Cambridge City‖	Whitewater		.50					T.	.07	.01	.01		.04	.01		.12	.18	.57				T.	.81	.53					.10			2.95
Columbus‖	East Fork, White		.35					T.	.16	.02	.01					.25	.17	.74					.71	.69								3.10
Connersville	Whitewater	.32	T.					.09	.08	T.			T.	.04	.03	T.		T.					.65	1.05					.05			2.31
Delphi‖	Wabash	.02	.26					T.	.12				.10	.07		.09	.64	.40	T.			T.	.87	.73	T.				.14			3.44
Eminence	West Fork, White	.30						.10	.40				.20	T.		.40	.10	.50	T.			T.	.50	.80								3.30
Evansville	Ohio	.15					.06	.01	.69	T.					.56	.26	.43						.70							T.		2.86
Farmersburg	Wabash	.36							.13				.17		.53	.04	.75					.15	1.55									3.68
Farmland‖	West Fork, White		.52						.25							.16	.35	.44	T.			T.	.76	1.15					.09			3.72
Greenfield	East Fork, White	.30						.15	T.				.15		T.	.17	.80	T.				.13	1.53									3.20
Greensburg	do	.13						.12	.05	T.					.06		1.07					T.	.18							T.		1.61
Heltonville	do								.23	.22							1.24															1.69
Huntingburg	Patoka																															
Huntington	Wabash	.43	.08					.50	.10				.04	T.	.04	.18	.45	.08				.38	1.80						.08	.05		4.21
Indianapolis	West Fork, White	.03	.11					.85	.02		.02		.15		.17	.14	.41	T.				.53	.86						.01			3.30
Jeffersonville	Ohio	.02						T.	.07	.52	T.				.05	.16	.53				T.		.57							T.		1.92
Judyville	Wabash	.65						.03	T.		T.		.49	.04	.26	.04	1.05	T.				.06	1.47	.02					.18			4.29
Kokomo	do	.35	.06					.67								.21	.65	T.				.08	1.67			T.		.08	.09			3.86
Lafayette‖	do	.03	.15					.09	.59	T.	T.		.09	.11		.14	.89	.32	T.			T.	.97	.70		T.			.20			4.28
Logansport‖	do		.20					.04	.09				.14	.10		.07	.71	.16				.05	.85	.73					.12			3.26
Madison	Ohio	.09							.12	.18	T.					.06	.65	.02					.80						T.			1.92
Marengo	Big Blue	.06						.02	*	.53			T.		*	.38	.45					*	.48									1.92
Marion	Mississinewa	.45	.06					.48	.03				T.		.06	.39	.53	T.				.11	1.31						.11			3.53
Markle	Wabash	.30	T.					.40	.35				T.		T.	.25	.40	T.				T.	2.05	T.					.15			3.90
Mauzy	East Fork, White	.37	T.					.08	.05	T.	T.		T.		.02	.07	.81	T.				.18	1.11	T.					.05			2.74
Moores Hill	Ohio	.18							T.	.02	.01					.04	.68	.04	T.				.36	.21								1.54
Mt. Vernon‖	do	.10							.18	.74	.04					.58	.48	.70						.74								3.56
Paoli	East Fork, White	.08	.05					.08	.20	.26					.07	.06	.63					.01	.51									1.95
Princeton	Patoka								.53				.20			.50	.62						.63									2.48
Richmond	Whitewater	.52						T.	.06	T.			.03		.04	.17	.55	T.				.77	.75					.06				2.95
Rochester	Tippecanoe	.29	.28					.19	.40				.25		.02	.10	1.40	T.				.05	.95						.15	.01		4.09
Rockville	Wabash	.75	T.						.03				.13		.23		.46	T.				T.	.99	T.								2.59
Rome	Ohio	.04						T.	.11	.60	T.	T.			.02	.14	.52	T.					1.02	T.								2.45
Salamonia	Salamonia	.39	T.					.12	.12						.03		.62	.03				.05	1.57	.03								2.96
Salem	Big Blue	.05	.02					T.	.18	.44	.02				.06	.15	.64	T.				T.	.70									2.26
Scottsburg	Muscatatuck	.28							.36	T.					T.	.12	.59						.70									2.05
Seymour	East Fork, White	T.						T.	.12	.18			T.		.05	.04	.49					T.	.51									1.39
Shelbyville	do	.30	.03					.10		.03	.01		.03		.02	.10	1.00	T.				.32	1.31	.01					T.			3.26
Terre Haute	Wabash	.28						.06	.04				.14		.36	.04	.90					.02	1.72									3.56
Veedersburg	do	.25	.02					.36					.17	.10	.11	.61	T.				.05	1.17	.05									2.89
Vevay	Ohio	.30							.50	T.	T.					.05	.15						.60									1.60
Vincennes‖	Wabash	T.	.15					T.	T.	.65	T.					.40	.15	1.10	T.				.20	1.00								3.65
Washington‖	West Fork, White	.20	.02					.05	.05	.46	.02					.48	.14	.85					T.	.61								2.88
Whitestown	do	.14	.03					.32	.06				.11		.10	.28	.51	T.					1.32						T.			2.87
Winona Lake	Tippecanoe	.22	.21					.15	1.33			.02	.19	.03		.09	.92	.04	T.			.08	1.17	T.					.10			4.55
Worthington	West Fork, White	.16	.13	T.				.08	.08	.05	T.		.06	.35		.28	.09	.54	T.				.23	.80								2.85
Illinois.																																	
Albion	Wabash	.14							.56						.26	.34	1.18						.62									3.10
Charleston	do	.14						.27				.09	.49		.25	.17	.38					.34	1.01									3.14
Equality	Ohio	.05							1.08				T.		.13	1.00	.85	T.					.69						.03			3.83
Fairfield	Wabash								.53						.52	.24	1.37						.94									3.60
Flora	do	.52						.30	.65	T.		T.	.88		.31		.65					T.	.90						T.	.07		4.28
Golconda	Ohio	.24							.37						.37	2.02	.91						.67									4.58
Hoopeston	Wabash	.62							.03				.32	.05	.18		1.53	T.				.02	.52			.02			.18			3.47
McLeansboro	do							.05	.58	.04					.75	.05	1.29						.68									3.44
Martinsville	do	.32						T.	T.				.60		.50	.63	1.30					.10	1.20									4.65
Mt. Carmel‖	do	.04	.02						.10	.22						.46	.14	.86				T.	.02	.74								2.60
New Burnside	Ohio								.92						.90		.62		.92				.73									4.09
Olney	Wabash	T.						.61	.46				.54		.59	.09	.63					.20	1.01									4.13
Palestine	do	.24						.28	.13	.05			.29		.52		.62					.07	1.50									3.70
Paris‖	do	.10	.15					.08	.10				.16	T.	.30	.15	.43	.55					.20	1.02								3.24
Philo	do	.73											.40		.21		.91					T.	.71									2.96
Rantoul	do	1.06	.03					T.	.02		T.		.56	.02	.18		1.12	T.				T.	.52			T.						3.51
Robinson	do	.07						.51		.15		.34	T.		.10	.35	.83					.18	1.33									3 86
Sumner‖	do	.28							.45				.42		.72		.79					.10	.91									3.67
Tuscola‖	do	.11	.51						T.				.19	.33	.64	.14	.68	.19					.10	.60								2.89
Urbana	do	1.00						T.				.09	.41	T.	.20	.11	1.09					T.	.55									3.45

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 3, Ohio Valley.*

Date.	Pennsylvania.				West Virginia.																Ohio.							
	Greenville.		Pittsburg.		Charleston.		Elkhorn.		Elkins.		Glenville.		Huntington.§§		Morgantown.		Parkersburg.		Wheeling.§§		Canton.		Cincinnati.		Columbus.		Dayton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	72	44	70	50	74	40	62	30	72	30	76	31	72	37	71	47	73	41	70	31	68	41	73	57	66	50	70	50
2...	62	31	64	50	70	56	70	50	64	50	68	50	67	40	65	52	59	50	59	35	54	48	64	51	58	46	62	48
3...	50	34	54	43	65	40	62	40	58	43	61	36	66	39	55	40	60	43	59	37	53	38	68	45	60	42	64	39
4...	50	35	52	40	65	44	66	44	59	35	65	34	67	45	57	41	62	45	60	35	50	32	67	47	59	44	67	32
5...	53	25	50	37	66	36	68	32	55	26	63	30	67	32	51	33	60	39	53	33	49	34	69	39	59	43	69	38
6...	61	32	60	45	70	43	70	34	51	39	62	29	69	35	56	40	63	47	53	35	54	39	77	47	64	44	70	40
7...	64	32	66	44	71	50	69	47	66	37	72	37	75	39	63	43	70	42	60	34	61	39	76	49	64	44	70	41
8...	60	50	63	51	74	51	70	49	69	50	75	46	76	48	69	53	72	55	68	35	60	50	66	50	62	48	65	50
9...	54	36	56	48	71	55	68	50	56	50	64	53	57	52	58	49	55	51	60	49	51	41	54	47	54	46	53	44
10...	57	41	62	51	70	54	60	48	61	47	64	50	73	51	62	48	63	54	67	49	62	44	72	53	65	52	66	50
11...	72	44	71	55	73	48	69	43	72	38	75	39	72	42	72	50	73	50	73	44	68	49	74	54	69	53	71	55
12...	67	44	70	55	71	47	70	43	69	34	74	38	74	40	70	41	71	47	74	41	64	44	70	55	67	52	70	55
13...	74	48	72	51	74	45	70	42	72	37	79	37	78	42	75	47	75	42	73	41	73	48	74	47	72	52	75	44
14...	73	47	73	57	75	49	72	44	71	37	77	38	66	46	73	55	75	49	76	39	74	48	76	54	74	54	76	55
15...	65	42	66	49	70	50	69	46	63	38	68	40	72	50	66	55	64	56	66	39	63	42	67	54	65	48	74	48
16...	61	36	66	42	72	50	70	45	60	49	75	48	38	38	69	45	72	54	68	45	63	39	70	38	67	42	69	50
17...	63	31	61	32	72	37	66	38	59	28	68	35	42	32	65	32	61	33	38	37	58	29	38	32	42	30	53	31
18...	36	29	33	28	40	31	38	25	31	27	37	32	57	28	35	32	38	30	41	32	35	27	42	29	37	30	41	28
19...	45	30	50	30	58	31	45	26	52	27	57	27	66	37	51	30	54	30	53	32	50	30	56	34	52	31	52	33
20...	56	38	61	46	67	36	60	34	64	39	67	28	68	47	66	46	64	47	65	34	58	40	64	45	60	41	62	43
21...	56	46	62	56	69	47	64	39	63	49	68	38	75	55	62	54	67	59	65	36	58	45	67	60	66	56	66	57
22...	69	45	71	55	75	54	68	44	72	47	75	48	41	35	72	57	74	56	73	51	70	45	73	37	71	33	71	41
23...	65	29	55	27	73	37	63	40	55	30	72	37	38	29	68	32	56	34	39	36	54	27	37	32	36	28	41	29
24...	45	20	40	23	43	32	63	38	30	25	40	30	46	21	34	23	40	29	41	24	39	21	45	27	41	24	45	23
25...	42	25	43	27	45	26	57	30	41	24	45	19	53	24	39	21	41	26	42	24	40	23	51	32	39	25	45	25
26...	49	27	50	31	55	29	53	24	51	23	45	20	64	24	49	27	53	26	53	25	54	26	55	30	50	28	56	25
27...	60	26	57	33	70	30	56	32	67	23	68	23	68	26	66	27	65	30	59	26	60	29	69	35	62	37	62	30
28...	68	28	66	35	68	39	62	31	66	24	68	25	48	36	65	36	67	34	69	28	64	37	70	43	67	42	68	36
29...	56	33	55	36	66	46	64	27	57	27	55	40	53	25	58	39	56	36	54	30	48	32	57	37	52	32	57	36
30...	45	19	47	31	62	30	62	29	54	20	56	20	56	25	51	22	52	27	50	23	46	24	52	33	51	27	53	25
31...																												
Mns	58.3	34.9	58.9	41.9	66.5	42.1	63.5	38.1	59.6	35.1	64.6	35.3	62.1	37.3	60.4	40.6	61.8	42.1	59.4	35.7	56.7	37.0	63.1	43.1	58.4	40.8	62.1	40.0

Date.	Ohio.				Virginia.						Tennessee.																Beattyville, Ky.‡‡	
	Marion.		Waverly.		Big Stone Gap.		Wytheville.		Asheville, N. C.		Decatur, Ala.‡‡		Chattanooga.		Jonesboro.		Knoxville.		Nashville.		Palmetto.		Sparta.		Waynesboro.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	65	48	71	34	73	33	65	32	66	53	76	51	69	58	.....	.....	73	44	76	62	69	49	72	60	77	57	76	32
2...	55	38	74	53	70	30	67	52	72	52	75	46	73	56	.....	.....	72	53	71	56	75	47	70	49	70	43	75	32
3...	59	37	67	34	70	33	61	45	65	46	79	39	75	48	.....	.....	70	45	78	46	80	38	74	32	79	37	73	29
4...	59	38	69	38	69	39	64	47	67	46	83	37	81	58	.....	.....	74	50	79	57	82	48	76	37	80	45	73	36
5...	69	41	72	32	72	35	68	37	75	40	85	45	77	48	.....	.....	74	42	81	48	82	43	77	40	80	45	76	28
6...	66	42	67	40	74	42	65	37	69	40	80	47	76	52	.....	.....	72	47	71	53	79	50	80	40	76	46	78	35
7...	64	42	67	37	73	44	53	37	65	46	82	49	76	53	.....	.....	75	50	78	56	81	54	80	47	80	49	78	37
8...	62	47	72	43	72	41	68	48	72	52	81	52	72	59	.....	.....	74	53	78	62	80	59	78	57	78	56	78	42
9...	50	42	64	49	70	44	64	48	71	43	80	52	69	53	.....	.....	68	57	68	58	69	55	70	52	69	59	62	45
10...	65	48	67	52	70	51	49	46	59	48	77	53	69	55	.....	.....	73	54	75	57	70	59	75	50	75	53	76	50
11...	70	52	78	44	69	50	63	44	67	48	74	54	68	53	.....	.....	68	49	72	56	72	53	74	55	72	57	79	40
12...	65	52	76	42	71	40	68	37	70	37	76	52	71	45	.....	.....	70	43	75	53	77	52	76	41	74	53	78	38
13...	74	46	78	37	73	39	67	35	66	41	77	51	73	49	.....	.....	77	47	77	52	76	50	76	40	75	50	82	35
14...	75	50	80	41	73	44	66	39	69	51	75	53	74	61	.....	.....	73	51	74	62	77	62	77	42	74	61	81	37
15...	66	48	69	51	73	41	71	42	70	40	79	54	71	52	.....	.....	73	47	75	61	79	59	77	50	76	59	70	42
16...	65	42	71	52	67	43	68	39	62	45	75	54	73	58	.....	.....	70	49	73	46	75	62	72	46	73	56	73	43
17...	52	33	67	32	65	37	59	30	58	32	50	38	58	37	.....	.....	58	36	46	34	62	33	50	34	56	33	36	34
18...	36	29	45	30	39	29	33	21	40	26	49	28	45	31	.....	.....	41	31	46	28	47	24	63	30	45	26	48	24
19...	52	31	57	27	52	23	49	21	57	21	59	27	56	30	.....	.....	56	27	58	34	59	26	59	25	59	25	62	22
20...	60	36	67	44	60	25	58	31	66	24	58	26	65	35	.....	.....	63	32	66	44	67	41	57	27	67	43	70	27
21...	58	53	70	43	65	31	63	29	69	32	67	37	71	46	.....	.....	71	42	73	58	76	55	55	25	75	57	71	39
22...	67	45	75	53	69	35	67	35	67	39	75	55	73	52	.....	.....	73	46	72	41	74	58	58	26	71	53	78	52
23...	55	28	71	31	67	35	50	31	56	32	42	40	52	38	.....	.....	54	36	46	34	58	37	60	32	53	37	38	33
24...	45	21	44	25	43	33	36	28	40	32	53	30	53	34	.....	.....	47	36	52	31	50	28	57	26	53	27	48	29
25...	38	21	44	19	50	23	48	27	54	24	.....	31	58	34	.....	.....	50	29	58	32	65	28	58	25	63	38	58	19
26...	54	23	59	20	60	25	62	31	67	28	.....	31	62	36	.....	.....	60	30	66	36	70	34	66	27	68	32	64	19
27...	64	32	69	24	66	25	68	26	68	29	.....	33	67	37	.....	.....	65	34	72	41	73	39	71	30	72	38	73	22
28...	67	40	72	28	65	30	66	29	66	29	.....	38	67	38	.....	.....	68	35	72	43	74	40	70	32	73	39	75	24
29...	60	33	63	39	53	33	55	33	61	41	.....	38	73	42	.....	.....	63	40	68	45	69	37	66	34	73	38	49	34
30...	63	24	57	22	61	28	55	25	59	31	.....	39	60	41	.....	.....	57	37	55	39	65	43	62	30	64	47	64	20
31...																												
Mns	60.0	38.7	66.7	37.2	65.1	35.4	60.1	35.4	63.8	38.3	71.1†	42.7	67.6	46.3	.....	.....	66.1	42.4	68.4	47.5	71.1	45.4	68.5	38.0	70.0	45.3	68.1	33.3

TABLE 3.—*Maximum and minimum temperature at selected stations, November, 1909. District No. 3*—Continued.

Date.	Kentucky.														Indiana.												Ohio.	
	Bowling Green. ‡‡		Earlington. ‡‡		Greensburg. ‡‡		Lexington.		Louisville.		Maysville. ‡‡		Williamsburg. ‡‡		Butlerville.		Evansville.		Indianapolis.		Kokomo.		Rockville.		Worthington.		Philo, Ill.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	77	48	75	58	76	41	71	55	73	58	76	39	75	37	73	58	70	59	67	51	67	52	66	55	75	54	64	51
2...	77	48	72	52	71	47	63	49	67	53	67	47	72	55	66	42	68	51	63	48	60	47	63	47	69	51	61	44
3...	80	40	81	36	75	29	68	41	72	45	70	36	73	30	68	38	76	45	66	39	65	35	69	36	66	35	67	32
4...	80	46	81	40	72	29	67	50	71	51	70	36	75	36	67	45	73	48	64	48	69	31	69	43	69	37	68	39
5...	82	40	81	43	78	30	70	45	76	44	73	30	78	33	70	40	77	50	68	43	66	33	73	46	69	39	71	40
6...	76	46	74	45	80	32	77	54	78	50	78	31	74	37	80	47	77	52	76	48	68	38	76	49	76	41	73	42
7...	82	55	81	58	81	38	75	55	78	55	77	38	73	42	78	53	77	62	66	54	67	44	71	58	77	42	75	53
8...	71	56	68	59	72	50	69	56	70	57	74	41	71	47	70	56	64	56	64	48	64	47	66	49	73	58	65	44
9...	66	56	60	58	62	55	61	52	57	51	56	50	67	50	57	42	58	54	54	44	52	42	55	47	62	50	58	46
10...	78	50	77	51	73	51	67	55	74	56	68	49	75	54	71	51	73	55	70	50	67	49	69	51	57	50	71	46
11...	76	50	73	53	72	48	71	52	74	57	75	46	74	44	73	55	72	59	71	55	72	55	71	59	72	54	73	59
12...	88	47	78	57	78	45	72	52	74	57	76	44	78	40	69	54	73	59	61	58	64	54	64	55	73	57	68	49
13...	80	45	78	48	80	38	75	53	77	54	80	40	80	37	76	53	76	55	71	52	71	47	73	54	67	52	72	50
14...	79	53	74	55	77	38	75	55	77	59	80	40	76	47	76	58	69	59	69	53	68	54	66	54	75	54	64	47
15...	67	56	66	53	71	48	64	57	67	54	65	47	76	42	70	52	60	48	54	39	62	35	55	35	70	53	48	33
16...	74	53	70	52	73	48	70	38	70	37	73	54	70	43	68	56	66	37	64	34	61	40	62	35	63	54	61	34
17...	41	32	41	34	38	34	38	28	37	31	37	35	38	37	60	28	37	31	34	29	43	29	39	28	65	32	35	28
18...	48	27	47	24	47	29	38	25	42	31	46	29	40	27	42	24	41	26	39	29	36	24	39	22	33	28	38	20
19...	62	29	59	27	59	27	55	30	57	36	59	29	62	23	55	30	58	36	52	34	50	31	54	32	41	31	54	32
20...	69	39	67	41	67	27	63	40	65	46	68	34	70	28	64	42	63	47	61	46	60	42	61	41	55	34	61	42
21...	75	53	71	50	71	41	64	54	76	61	72	40	71	40	66	57	67	59	61	50	59	46	62	48	64	43	59	45
22...	76	56	73	63	74	56	71	38	73	39	77	56	75	43	73	47	70	39	65	33	64	34	65	37	64	43	62	34
23...	45	36	47	35	58	34	38	30	39	31	38	33	39	36	48	32	42	34	37	28	37	24	40	29	67	32	38	25
24...	52	25	51	26	47	24	40	25	45	28	45	26	55	31	47	23	48	30	44	26	43	21	47	27	43	28	46	27
25...	59	27	62	28	58	23	50	28	55	36	52	27	57	22	57	27	57	36	52	35	49	30	54	33	48	28	54	31
26...	68	30	70	30	63	23	58	36	60	36	60	24	68	27	58	33	64	40	56	38	56	27	60	38	55	31	60	33
27...	73	25	73	32	73	23	68	41	71	39	71	24	72	25	69	39	70	49	67	41	65	36	67	38	63	32	71	40
28...	76	38	76	47	72	26	68	46	73	48	73	25	73	30	72	46	70	48	69	47	58	39	69	49	69	42	67	44
29...	64	40	56	40	54	31	49	38	55	39	54	34	54	33	62	40	57	43	50	36	48	33	50	38	71	42	49	36
30...	60	29	60	31	58	22	52	32	54	33	58	23	64	22	55	28	54	36	53	33	50	24	53	30	54	27	50	26
31...																												
Mns	70.0	42.5	68.1	44.2	67.7	36.2	62.2	43.7	64.9	45.7	65.6	36.9	67.6	36.6	65.3	43.2	64.2	46.8	59.6	42.3	58.7	38.2	60.9	42.1	63.5	41.8	60.1	39.1

Climatological Data for November, 1909.

DISTRICT No. 4, LAKE REGION.

Prof. HENRY J. COX, District Editor.

TEMPERATURE.

The month of November, 1909, in the Lake region was unusually warm. It was, in fact, the warmest November on record, with the single exception of that of 1902. Temperature in all parts of the district averaged far above the normal, the excess ranging from 8° and 9° in the southwestern sections to 4° and 5° over the northern and eastern portions. At several stations excesses of more than 10° occurred, the amounts being as follows: Hammond, Ind., +10.8°; Allegan, Mich., +10.4°; Iron River, Mich., +10.7°, and Harrison, Mich., +10°6. At only 5 stations was the excess less than 3°: Hayes, Mich., +2.9°; Mancelona, Mich., +2.9°; Moira, N. Y., +2.0°; Plattsburg, N. Y., +2.7°, and Enosburg Falls, Vt., +2.9°. However, the first three of these stations have records of comparatively short duration. Two cool periods—15th to 19th, and 21st to 27th—crossed the district, but pronounced cold was experienced only for brief periods in localities of the Lake Superior region, and in the naturally colder portions of the extreme eastern sections. The lowest temperatures throughout the district occurred generally on the 23d over the western and from the 25th to 30th over the eastern portions. The lowest temperatures of the month occurred as follows: Minnesota, Stephens Mine, −1° on the 22d; Wisconsin, Fon du Lac, −1°, Grand River Locks, −8°, Waupaca, −3°, all on the 23d; Michigan, Big Rapids, −2°, Ivan and Watersmeet, −4°, Luther, −3°, Mancelona and Roscommon, −1°, all on the 23d; New York, Plattsburg, −4° on the 26th.

The warmest period extended over the entire district from the 11th to 15th, with the exception of New York State, where the highest temperatures of the month were experienced in many localities on the 1st. During these periods the temperature rose to over 60° in the extreme northern portions of the district, and to over 70° throughout the remaining sections. The highest temperature of the month, 78°, occurred at Allegan, Mich., and also at Hunt, N. Y., on the 1st.

PRECIPITATION.

The precipitation was deficient over the eastern portions of Ohio, in New York, Vermont, the northern counties of Lower Michigan, and the eastern counties of Upper Michigan. A deficiency in the eastern portion of the district has been continuous for the past six months, an almost unprecedented condition, and has resulted in unusually low water in practically all of the streams of that section. Throughout the remainder of the district, the amount of precipitation was considerably more than normal, especially over areas of the Lake Superior region.

The greatest monthly precipitation was 6.80 inches at Ironwood, Mich., but 5.61 inches of this amount fell on the 1st, and 0.41 inch on the day following, leaving but 0.78 inch for the remainder of the month. A similar condition existed at Two Harbors, Minn., where, out of a total amount of 5.64 inches for the month, 4.10 inches fell on the 16th, and 1.20 inches on the 14th. However, at many stations in western and central Upper Michigan, Wisconsin, Indiana, southern Lower Michigan, and Ohio, amounts of from 3 to 5 inches were measured; and in general over these sections the precipitation was quite well distributed throughout the month.

The least monthly amount was 0.54 inch, at Blaney, Mich., but this station was the only one outside of New York which received less than 1 inch during the month. In the latter State four stations reported monthly amounts of less than 1 inch.

There was no prolonged period during which rain or snow did not fall, except in the Minnesota portion of the district, where there was no precipitation from the 2d to 9th, inclusive.

The snowfall over the northern portions of the district was confined chiefly to the period 14-16th, when the fall was quite heavy in many localities of the Lake Superior region, and the covering remained on the ground until about the 27th. In these sections the total snowfall for the month ranged from 10 to 20 inches, while at Ewen, Mich., 31.5 inches were recorded. A moderately heavy fall of snow occurred over middle and southern Wisconsin on the 22d, and this remained on the ground until the 26th. Over the eastern sections practically no snow fell until the 24-25th, when a snowstorm was general over Vermont and New York to within 60 or 70 miles of the western boundary of the latter State, and caused a fall of from 2 to 8 inches. In the remaining portions of the district the snowfall was very light, being less than 0.1 inch at most stations in the southern sections. Except in Vermont, where from 1 to 4 inches lay on the ground on the 30th, practically all the snow covering had disappeared by the close of the month.

MISCELLANEOUS.

Severe local storms, accompanied in localities by high winds and lightning, passed over the Indiana and Ohio portions of the district on the 22d, causing some damage to buildings, orchards, shade trees, etc.

The percentage of sunshine over the district was somewhat variable, but as a whole was not far from the normal in any section. The greatest number of cloudy days occurred in the regions north of the 45th parallel, while clear days were, as a rule, most frequent in the vicinity of the lower Lakes. The number of days with 0.01 inch or more of precipitation ranged from 10 to 15 in most localities.

TABLE 1.—*Climatological data for November, 1909. District No. 4, Lake Region.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Minnesota.																				
Duluth	St. Louis	1,133	38	33.6	+ 4.3	63	10	11	18	23	2.16	+ 0.58	1.10	8.5	10	5	6	19	sw.	U. S. Weather Bureau.
Floodwood	do	1,257	5	32.4	.....	62	11	8	22	41	2.19	.....	1.18	5.0	3	1	16	13	.....	M. H. Schussler.
Mount Iron	do	1,510	15	31.0	+ 6.7	60	11	2	21†	40	1.32	+ 0.17	0.73	12.0	9	1	14	15	nw.	Oliver Iron Mining Co.
Stephens Mine	do	.....	2	30.9	.....	60	11	− 1	22	35	1.52	.....	0.73	10.0	8	6	6	18	a.	Do.
Two Harbors	Lake	692	15	36.0	+ 5.2	62	3†	8	21	32	5.64	+ 4.15	4.10	4.0	4	8	10	12	ne.	Geo. W. Watts.
Wisconsin.																				
Appleton	Outagamie	795	10	41.0	+ 6.2	66	14	9	23	28	2.98	+ 1.38	0.75	7.0	12	9	5	16	e.	J. L. Mead.
Ashland	Ashland	647	15	37.7	+ 6.9	66	11	11	18	32	2.47	+ 0.99	0.89	9.0	5	8	8	14	s.	Sam Wheeler.
Cecil	Shawano	804	2	40.7	.....	66	14	12	23	30	3.78	.....	1.20	5.0	8	9	17	4	sw.	L. W. Schmidt.
Chilton	Calumet	860	15	41.8	+ 7.9	65	13	9	23	37	4.21	+ 2.84	1.05	12.5	11	2	23	5	se.	D. V. Jones.
Crandon	Forest	1,060	12	36.3	+ 8.5	58	11†	15	18	29	3.40	+ 1.30	1.10	7.0	7	17	4	9	s.	A. L. Emde.
Florence	Florence	1,293	17	35.6	+ 6.0	59	14	11	23	36	5.60	+ 3.55	1.56	10.0	6	5	8	17	se.	F. S. Evans.
Fond du Lac	Fond du Lac	800	23	41.2	+ 8.0	67	13	− 1	23	33	2.88	+ 1.23	0.55	5.0	11	12	6	12	sw.	Geo. W. Marshall.
Grand River Locks	Marquette	616	1	40.2	.....	69	13†	− 8	23	36	2.40	+ 0.73	0.60	9.0	9	19	3	8	s.	Jerry Parkinson.
Green Bay	Brown	617	23	41.4	+ 8.9	65	14	15	18	30	2.55	+ 0.59	0.62	9.7	11	3	7	20	s.	U. S. Weather Bureau.
Herbster	Bayfield	700	1	.....	.....	.....	.....	.....	.....	.....	4.17	.....	1.60	7.0	5	.....	.....	.....	.....	Wm. Angell.
Iron River	Bayfield	1,096	....	36.0	.....	64	11	4	18	30	2.88	.....	0.95	6.0	7	10	3	17	ne.	Harry C. Hale.
Kewaunee	Kawaunee	590	....	41.5	.....	62	14	18	18	30	2.23	.....	0.60	4.5	10	8	7	15	s.	Eugene V. Kimball
Manitowoc	Manitowoc	616	59	41.8	+ 7.7	65	14	15	23	25	2.90	+ 0.82	0.85	10.0	10	5	8	17	s.	Johanna Lups.
Menasha	Winnebago	764	12	.....	.....	.....	.....	.....	.....	.....	1.76	+ 0.68	0.49	6.0	7	18	0	12	se.	George T. Allanson.
Menomonee Falls	Waukesha	842	....	43.5	.....	66	11	12	23	31	2.70	.....	0.83	4.0	9	15	8	7	s.	S. H. Christman.
Milwaukee	Milwaukee	681	39	44.9	+ 8.8	66	11	19	23	32	2.29	+ 0.31	0.59	2.5	10	9	10	11	s.	U. S. Weather Bureau.
New London	Outagamie	762	13	40.2	+ 6.7	65	14	2	23	28	2.78	+ 1.05	0.70	14.0	6	6	11	13	ne.	A. H. Pape.
Oconto	Oconto	590	18	40.5	+ 6.7	65	14	14	23	26	2.65	+ 0.59	0.85	6.0	9	10	11	9	s.	W. K. Smith.
Oshkosh	Winnebago	744	20	40.8[a]	+ 6.3	67[a]	13[a]	5	23[a]	32	2.40	+ 0.80	0.75	10.0	6	17[a]	11[a]	1[a]	s.	Evan Vincent.
Pine River	Waushara	900	14	40.4	+ 7.0	68	7	2	23	37	2.29	+ 0.71	0.78	8.3	8	5	13	12	se.	G. H. Carpenter.
Plum Island	Door	588	1	45.4	.....	55	3	24	23	21	1.53	.....	0.45	0.5	11	7	8	15	s.	John P. Whelan.
Port Washington	Ozaukee	713	16	43.6	+ 8.0	66	14	13	23	33	3.50	+ 1.66	0.70	6.0	7	9	8	13	se.	R. C. Kann.
Racine	Racine	633	12	45.2	+ 6.0	67	14	18	23	31	3.00	+ 1.21	1.00	T.	11	10	4	16	se.	Daniel Davis.
Sheboygan	Sheboygan	831	9	43.6	+ 5.8	69	1	14	23	39	3.02	+ 1.32	0.80	9.0	10	3	14	13	se.	Louis C. Meyer.
Sturgeon Bay	Door	600	11	40.8	+ 6.4	62	3	19	23	28	3.15	.....	0.71	5.5	11	9	12	9	s.	Adam N. Dier.
Superior‡‖	Douglas	671	....	34.6[b]	.....	65[b]	10	12[b]	18†	34	2.28	.....	1.56	2.6	12	9	5	16	sw.	E. B. Banks.
Waupaca	Waupaca	857	13	39.7	+ 6.3	65	14	− 3	23	31	2.69	+ 1.05	0.53	11.0	8	4	9	17	sw.	J. H. Flagg.
Illinois.																				
Chicago	Cook	824	39	48.5	+ 9.3	71	11	28	23	28	3.84	+ 1.34	1.31	T.	12	4	11	15	s.	U. S.Weather Bureau.
Indiana.																				
Auburn	Dekalb	874	6	45.2	.....	71	13	20	24†	34	3.81	.....	1.18	.....	10	8	2	20	w.	Mrs. Josie Kuhlman.
Elkhart‡	Elkhart	801	....	49.2[a]	.....	75[a]	1	21[a]	24	31	4.49	.....	1.86	T.	12	11	7	11	sw.	Miles Medical Co.
Fort Wayne	Allen	775	5	48.6	.....	74	13	21	24†	37	3.68	.....	1.77	T.	12	12	8	10	sw.	O. E. Mohler.
Hammond	Lake	598	12	48.8	+ 10.8	77	2	24	30	40	5.60	+ 3.45	1.90	0.0	7	10	10	10	.....	C. W. Whitney.
Lima	Lagrange	886	....	44.8	.....	69	11	18	24	33	4.27	.....	1.74	0.0	5	15	2	13	e.	Jas. E. Zook.
South Bend	St. Joseph	726	10	46.2	+ 6.5	71	11	20	23	35	4.68	+ 1.56	1.34	0.5	12	10	7	13	se.	H. H. Swaim.
Michigan.																				
Adrian	Lenawee	707	31	46.0	+ 8.7	72	14	22	24	37	4.92	+ 1.64	1.70	.....	9	1	8	21	s.	B. F. Gibbs.
Agricultural College	Ingham	820	45	44.5	+ 8.7	71	11	14	24	30	3.74	+ 1.49	1.40	0.5	12	7	17	6	s.	Prof. A. J. Patten.
Allegan	Allegan	698	18	48.4	+10.4	78	1	18	23	35	3.92	+ 1.42	1.62	1.0	9	5	12	13	s.	Agent, P. M. R. R.
Alma	Gratiot	750	22	41.7	+ 4.3	70	11	7	23	28	2.93	+ 0.28	1.70	2.0	6	4	19	7	se.	P. M. Smith.
Alpena	Alpena	609	36	39.8	+ 6.1	67	11	10	23	28	2.21	− 0.35	0.91	12.6	9	6	4	20	se.	U. S. Weather Bureau.
Ann Arbor	Washtenaw	930	29	44.0	+ 7.2	71	14	18	24	27	4.34	+ 1.76	2.12	0.5	13	8	9	13	e.	University of Michigan.
Arbela	Tuscola	728	13	43.0	+ 5.6	72	11	15	24	38	5.31	+ 2.71	1.62	2.0	11	0	11	19	nw.	Wm. Atkin.
Ball Mountain	Oakland	983	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. N. Hilton.
Baraga	Baraga	623	7	.....	.....	.....	.....	18[a]	23	.....	.....	.....	.....	.....	.....	5[a]	0[a]	24[a]	s.	Agent, D. S. S. & A. Ry.
Battle Creek	Calhoun	822	25	44.4	+ 6.1	69	11	14	23	28	4.88	+ 2.49	1.96	T.	9	9	7	14	sc.	Elmer E. Sager.
Bay City	Bay	593	13	43.8	+ 6.8	70	11†	12	23	35	4.80	+ 2.79	1.50	2.0	7	4	17	9	e.	Agent, P. M. R. R.
Benzonia	Benzie	832	13	42.8	+ 7.4	67	1	14	23	35	4.28	+ 1.50	1.38	7.5	8	8	10	12	sw.	M. S. Joiner.
Berlin	St. Clair	.....	20	41.2[a]	+ 4.8	69[a]	14	11[a]	24	32[a]	4.01[a]	+ 1.37	2.01	2.4[a]	13[a]	4[a]	13[a]	12[a]	sw.	R. O. Gould.
Big Rapids	Mecosta	906	13	40.4	+ 5.4	66	11	− 2	23	33	4.09	+ 1.61	1.11	6.0	13	15	6	9	se.	Charles Gay.
Blaney	Schoolcraft	.....	2	33.8	.....	58	14	12	17	35	0.54	.....	0.20	3.0	7	11	12	7	sw.	Dr. S. S. Hackwell.
Bloomingdale	Van Buren	.....	5	47.6	.....	71	11	21	17	27	2.51	.....	1.00	T.	6	16	5	9	sc.	John M. Haven.
Cadillac	Wexford	1,378	....	40.2[a]	.....	64[a]	1	4[a]	23	34[b]	3.23	.....	0.60	10.0	13	14[a]	3[a]	12[a]	sw.	A. J. Teed.
Calumet	Houghton	1,246	21	35.6	+ 5.1	62	11	12	15	36	3.48	+ 0.95	0.73	20.5	15	7	2	21	s.	E. S. Grierson.
Cassopolis	Cass	903	8	46.4	.....	70	11	20	23	28	3.61	.....	2.10	1.0	7	14	0	16	sw.	Agent, M. C. R. R.
Charlevoix	Charlevoix	610	22	43.0	+ 6.2	66	1	15	23	28	2.06	− 0.40	0.71	2.0	6	5	7	18	sw.	Agent, P. M. R. R.
Charlotte	Eaton	.....	5	44.0	.....	70	11	12	23	31	4.74	.....	1.52	.....	9	11	7	12	sw.	City of Charlotte.
Chatham	Alger	875	8	35.7	.....	60	11	10	18	38	2.37	.....	0.65	11.3	6	6	13	11	nw.	U. P. Express Station.
Cheboygan	Cheboygan	611	19	38.5	+ 4.1	62	1	10	23	32	3.23	+ 0.81	0.90	6.0	6	13	9	8	e.	E. A. Bouchard.
Clinton	Lenawee	830	19	45.6	+ 7.8	72	14	18	24	34	4.58	+ 1.97	2.20	T.	9	13	7	10	sw.	David Woodward.
Coldwater	Branch	984	12	47.4[b]	+ 9.1	75[b]	11	16[b]	23	28[b]	5.13[b]	+ 2.39	2.00	0.5[b]	11[b]	13[b]	7[b]	8[b]	se.	Agent, L. S. & M. S. Ry.
Concord	Jackson	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. S. Arthur.
Croton	Newago	681	1	43.1	.....	69	11	5	24	31	2.99	.....	0.80	5.0	11	4	21	5	sw.	G. R. M. Power Co.
Deer Park	Luce	610	8	38.6	.....	58	11†	16	23	28	2.85	.....	0.60	9.0	10	6	4	20	s.	Mrs. Sarah E. McGaw.
Detour	Chippewa	585	9	.....	.....	.....	.....	8	23	.....	2.50	.....	0.40	16.0	10	5	17	8	sw.	Nelson Abear.
Detroit	Wayne	730	38	44.9	+ 6.3	70	14	24	24	25	4.70	+ 2.07	2.61	0.3	8	5	6	19	s.	U. S. Weather Bureau.
Durand	Shiawassee	799	2	45.7	.....	70	11	13	24	38	3.41	.....	1.58	2.0	9	10[d]	9[d]	7[d]	w.	Agent, C. T.Dis.G.T.Rv.
Eagle Harbor	Keweenaw	622	10	39.8	+ 3.8	65	11	21	21	29	4.31	+ 2.01	1.25	7.3	10	4	6	20	w.	John Nolen.
East Tawas	Iosco	590	12	39.8	+ 3.9	60	13†	13	23	28	2.40	+ 0.73	1.00	3.0	7	21	6	3	nw.	Agent, D. & M. Ry.
Eloise	Wayne	640	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Wayne Co. House.
Escanaba	Delta	612	36	38.3	+ 6.6	58	3	16	18	25	3.49	+ 1.23	1.50	16.0	11	3	7	20	s.	U. S. Weather Bureau.
Ewen	Ontonagon	1,147	8	35.8	.....	63	3	2	23	37	5.91	.....	1.56	31.5	11	2	9	19	sw.	W. B. Hatfield.
Flint	Genessee	730	20	44.0	+ 8.1	70	11†	16	24	30	4.47	+ 2.08	1.40	1.0	10	11	6	13	w.	Wm. L. Fisher.
Frankfort	Benzie	589	5	42.8	.....	69	15	18	23	38	2.40	.....	1.05	5.0	8	7	0	23	s.	Capt. G. Morency.
Ganges	Allegan	665	....	46.0	.....	70	11	19	23	31	3.70	.....	1.48	T.	13	14	4	12	se.	H. H. Hutchins.
Gaylord	Otsego	1,367	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, M. C. R. R.
Gladwin	Gladwin	794	13	42.5	+ 7.3	70	11	13	24	37	3.60	+ 1.76	0.90	3.0	6	17	4	9	sw.	Geo. R. Smith.
Grand Haven	Ottawa	628	28	43.4	+ 5.4	67	13	16	23	25	2.47	− 0.06	0.79	3.7	17	6	11	13	se.	U. S. Weather Bureau.
Grand Marais	Alger	610	8	36.0	.....	55	5	18	19†	23	2.08	.....	0.80	10.0	10	4	4	22	s.	Mrs. Lena Truedell.
Grand Rapids	Kent	707	20	44.4	+ 6.3	73	11	16	23	27	3.23	+ 0.70	1.34	1.8	14	4	11	15	se.	U. S. Weather Bureau.
Grape	Monroe	625	19	45.7	+ 7.0	73	14	20	24	30	4.04	+ 1.48	2.20	T.	10	8	12	10	n.	Jos. W. Morris.
Grass Lake	Jackson	989	3	44.4	.....	69	11	16	24	30	4.03	.....	0.95	3.0	13	13	0	17	sw.	Menzo Conklin.
Grayling[a]	Crawford	1,147	20	39.9	+ 5.9	72	1	14	23	32	3.30	+ 0.81	1.00	16.0	6	11	11	8	sw.	Dr. Oscar Palmer.
Harbor Beach	Huron	635	21	42.0	+ 5.1	70	11	20	17	40	3.20	+ 1.06	1.00	1.0	7	11	12	7	s.	Agent, P. M. R. R.
Harrison	Clare	1,159	16	43.1	+10.6	70	1	5	24	39	2.00	− 0.16	0.60	6.0	4	6	7	17	sw.	Do.
Harrisville	Alcona	616	25	40.2	− 5.5	61	11†	12	23	31	2.32	− 0.23	0.85	8.0	12	7	9	14	sw.	Dr. D. W. Mitchell.
Hart	Oceana	698	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.0	...	8	16	6	s.	Agent, P. M. R. R
Hayes	Huron	620	10	41.3	+ 2.9	70	11	14	24	30	3.67	+ 1.97	1.62	3.0	6	21	6	3	sw.	C. F. Leipprandt.
Highland	Oakland	820	18	.....	.....	.....	.....	.....	.....	.....	4.61	+ 1.87	1.90	2.0	11	.....	.....	.....	.....	A. D. De Garmo.
Hillsdale	Hillsdale	1,150	12	43.8	+ 6.4	68	11†	18	23†	28	5.11	+ 2.47	2.35	1.3	10	14	2	14	sw.	Prof. C. L. Herron.

TABLE 1.—*Climatological data for November, 1909. District No. 4*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Michigan—Cont'd.																				
Holland	Ottawa	610	3	45.0	.....	71	11	14	23	30	3.62	.....	1.10	1.3	14	5	19	6	sw.	City of Holland.
Houghton	Houghton	668	8	37.1	+ 5.6	65	10	20	19	34	3.95	+ 1.15	1.39	21.4	16	3	6	21	nw.	U. S. Weather Bureau.
Howell	Livingston	924	17	42.3[d]	+ 5.7	68[d]	11†	18[d]	23†	31[d]	3.60[e]	+ 1.35	2.00[e]	0.5[e]	9[e]	7[e]	7[e]	11[e]	sw.	Frank Sharp.
Humboldt	Marquette	1,536	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, D. S. S. A. Ry.
Iron Mountain	Dickinson	1,111	8	36.3[a]	.....	63[a]	14	17[a]	18	33[a]	2.49[a]	.....	1.07	6.0[a]	6[a]	1[a]	10[a]	18[a]	nw.	Chapin Min. Co.
Iron River	Iron	1,504	12	39.3	+10.7	65	1	17	23	36	5.85	+ 3.83	1.60	6.0	7	19	8	3	se.	Victor D. Laing.
Ironwood	Gogebic	1,520	6	35.6	.....	60	10	10	18	27	6.80	.....	5.61	18.0	9	8	3	19	s.	Prof. J. V. Brennan.
Ishpeming	Marquette	1,536	6	36.0[f]	.....	59[f]	1†	16[f]	18	34[f]	3.54	.....	0.70	14.7	12	3	9	18	s.	Clo'd Cliffs Iron Co.
Isle Royale	Keweenaw	610	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John H. Malone.
Ivan	Kalkaska	.....	20	38.8	+ 5.3	63	1	− 4	23	31	2.18	− 0.49	0.50	11.5	11	6	12	12	se.	O. L. Giddings.
Jackson	Jackson	927	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, M. C. R. R.
Jeddo	St. Clair	667	20	42.9	+ 6.2	68	14	19	24	31	3.74	+ 1.22	1.25	3.0	11	10	9	11	sw.	William Bice.
Kalamazoo	Kalamazoo	955	33	45.2	+ 7.6	71	11	18	23	34	3.78	+ 0.94	0.97	1.0	8	10	11	9	sw.	Kalamazoo Asylum.
Lansing	Ingham	881	22	44.5	+ 7.4	70	11	17	23†	27	4.14	+ 1.80	1.47	1.0	9	10	5	15	se.	State Board of Health.
Lapeer	Lapeer	827	10	43.0	+ 5.5	73	14	15	24	35	4.09	+ 2.30	1.20	0.5	9	10	17	3	se.	Michigan Home.
Ludington	Mason	586	11	41.7[e]	+ 3.9	67[d]	13	14[f]	23	33[f]	1.98[d]	+ 0.07	0.75	5.0[d]	7[d]	8[d]	8[d]	10[d]	sw.	Agent, P. M. R. R.
Mackinac Island	Mackinac	831	9	.....	.....	.....	.....	20[e]	18	.....	.....	.....	.....	2.0	.....	8	8	14	nw.	M. I. S. P. Com.
Mackinaw	Cheboygan	592	13	40.8	+ 5.4	62	2†	13	23	33	2.32	− 0.52	0.72	2.0	10	13	1	16	nw.	Agent, G. R. & I. Ry.
Mancelona	Antrim	1,121	13	37.6	+ 2.9	65	1	− 1	23	36	1.41	− 1.33	0.50	6.0	10	14	5	11	se.	Do.
Manistee	Manistee	600	12	43.3	+ 6.6	65	1†	20	23†	38	.....	.....	.....	6.0	.....	10	12	8	sw.	Agent, P. M. R. R.
Maple Ridge	Delta	.....	3	36.1	.....	60	11	13	18	36	3.16	.....	0.81	12.0	6	7	4	19	s.	Herman Johnson.
Marquette	Marquette	734	38	38.4	+ 6.5	62	7	19	18	28	4.10	+ 1.31	1.68	13.7	9	2	9	19	w.	U. S. Weather Bureau.
Menominee	Menominee	581	10	40.2	+ 4.4	61	3	17	18	35	1.52	+ 0.08	0.64	T.	5	15	8	7	sw.	Fire Department.
Midland	Midland	604	10	44.3	+ 7.4	72	12	8	23	49	.....	.....	.....	.....	.....	2	12	16	se.	Agent, P. M. R. R.
Montague	Muskegon	660	6	43.7	.....	70	16	8	23	34	1.47	.....	0.50	5.0	7	2	9	19	sw.	G. A. Whitbeck.
Morencie	Lenawee	811	2	46.4	.....	72	14	21	23	33	5.01	.....	2.30	0.0	13	12	7	11	w.	George J. Tripp.
Mount Clemens	Macomb	615	9	.....	.....	70	14	.....	.....	.....	2.80	.....	0.80	1.0	12	5	19	6	sw.	Herman H. Orbits.
Mount Pleasant	Isabella	826	10	42.3	+ 6.1	79	1†	12	26	35	1.95	− 0.04	0.96	3.0	6	16	3	11	sw.	Agent, P. M. R. R.
Muskegon	Muskegon	587	13	44.0	+ 5.2	67	13	18	24	26	3.40	+ 1.24	1.20	6.0	7	6	2	22	w.	Agent, G. R. & I. Ry.
Newberry	Luce	773	8	38.7	.....	60	1†	15	23	33	.....	.....	.....	7.5	.....	14	0	16	sw.	Agent, D. S. S. & A. Ry.
Old Mission	Grand Traverse	848	15	43.0[a]	+ 6.7	68[a]	1	12[a]	23	31[a]	1.79[a]	− 0.66	0.78	.....	7[a]	3[a]	11[a]	15[a]	sw.	E. O. Ladd.
Olivet	Eaton	934	18	43.0	+ 6.4	68	11	12	23	32	4.96	+ 2.33	1.33	1.6	13	13	7	10	s.	Prof. G. A. Knapp.
Omer	Arenac	616	10	44.4	+ 9.2	71	1	22	5	33	1.91	+ 0.14	0.60	.....	5	5	9	16	w.	Agent, D. & M. Ry.
Onaway	Presque Isle	826	6	38.8	.....	69	2	7	23	36	1.90	.....	0.60	7.0	5	8	0	22	se.	Do.
Ovid	Clinton	760	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George B. Faxon.
Owosso	Shiawassee	731	12	44.8	+ 7.9	70	11	14	24	30	4.87	+ 2.72	1.52	0.2	12	5	21	4	sw.	Owosso Sugar Co.
Petoskey	Emmet	660	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.0	.....	.....	.....	.....	.....	Agent, G. R. & I. Ry.
Plymouth	Wayne	725	12	43.6	+ 4.7	72	14	18	24	40	.....	.....	.....	.....	.....	9	8	13	w.	Agent, P. M. R. R.
Pontiac	Oakland	935	9	43.6	.....	69	14	15	24	28	3.99	.....	2.10	0.5	10	10	7	13	nw.	Fred W. Shaw.
Port Austin	Huron	618	13	43.9	+ 5.8	74	14†	15	24	45	.....	.....	.....	.....	.....	5	11	14	sw.	Agent, P. M. R. R.
Port Huron	St. Clair	639	34	43.2	+ 6.4	68	14	19	24	25	3.39	+ 0.72	1.80	2.0	11	7	8	15	s.	U. S. Weather Bureau.
Powers	Menominee	868	8	37.6	+ 5.6	67	9	8	18	48	.....	.....	.....	10.0	.....	2	15	13	s.	Agent, C. & N. W. Ry.
Reed City	Osceola	1,033	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.0	.....	10	8	12	s.	Agent, P. M. R. R.
Roscommon	Roscommon	1,141	5	37.6[a]	.....	61[a]	11	− 1[a]	23	35[a]	2.32[a]	.....	0.90	11.0[a]	9[a]	9[a]	9[a]	11[a]	se.	Agent, M. C. R. R.
Saginaw	Saginaw	601	7	44.6	.....	72	11	15	23	27	4.32	.....	1.75	2.0	12	7	21	2	se.	Postmaster.
Saginaw	do	601	14	43.5	+ 6.0	72	11	13	23	30	3.28	+ 1.02	1.11	2.0	12	6	16	8	s.	R. B. Hudson.
Saginaw, W. S	do	593	19	41.0	+ 7.2	62	11	15	23	29	2.08	− 0.30	0.65	4.8	10	3	5	22	nw.	Agent, D. S. S. & A. Ry.
St. Ignace	Mackinac	593	19	41.0	.....	70	20	20	23	42	1.40	.....	0.27	.....	7	6	6	18	sw.	Rev. N. Wilhelm.
St. James	Charlevoix	681	3	44.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	City of St. Johns.
St. Johns	Clinton	779	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	City of St. Joseph.
St. Joseph	Berrien	593	23	47.8	+ 7.4	71	11	23	23	29	4.55	+ 1.63	1.92	T.	10	8	10	12	sw.	Agent, P. M. R. R.
Sandusky	Sanilac	790	....	42.0[c]	.....	69[c]	14	12[c]	23	33[c]	4.10[c]	.....	1.25	T.	8[c]	1[c]	20[c]	6[c]	sw.	John Wallington.
Saranac	Ionia	639	14	43.8	+ 7.5	71	11	13	23	29	3.37	+ 0.49	1.19	0.5	10	11	2	17	sw.	U. S. Weather Bureau.
Sault Ste. Marie	Chippewa	614	21	36.8	+ 6.1	61	11	6	23	22	2.14	− 0.78	0.50	3.4	12	4	2	24	se.	Mrs. M. E. De Diemar.
South Haven	Van Buren	585	13	44.6[e]	+ 5.2	69[e]	12	20[e]	23†	32	3.35	+ 0.70	1.00	0.0	6	14	8	8	se.	City of Stanton.
Stanton	Montcalm	880	17	43.8[a]	+ 7.7	68[a]	7†	24[a]	28	34[a]	.....	.....	.....	3.0[a]	.....	14[a]	9[a]	6[a]	se.	Agent, D. S. S. & A. Ry.
Thomaston	Gogebic	1,347	12	35.4	+ 6.3	60	12†	8	18	34	3.35	+ 1.30	1.30	16.0	7	1	11	18	n.	Dr. J. S. Caulkins.
Thornville	Lapeer	975	32	44.0	+ 6.4	70	14	12	24	34	2.75	0.00	0.65	5.5	11	7	11	12	ne.	Agent, G. R. & I. Ry.
Traverse City	Grand Traverse	588	12	41.6	+ 4.6	67	1	11	23	33	2.31	+ 0.18	0.60	8.0	8	22	0	8	s.	Agent, P. M. R. R.
Vassar	Tuscola	641	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. S. Schultz, Jr.
Victoria	Ontonagon	.....	....	34.8	.....	61	11†	9	23	33	3.73	.....	1.14	20.0	14	6	5	19	s.	B. H. Grant.
Watersmeet	Gogebic	1,605	....	34.4	.....	59	7†	− 4	23	34	4.97	.....	1.45	14.5	12	5	4	21	sw.	Charles A. Palmer.
Wasepi	St. Joseph	842	12	45.7	+ 7.6	70	11	16	23	26	4.94	+ 2.27	2.13	0.5	13	16	14	0	sw.	J. R. Wadsworth.
Webbersville	Ingham	884	7	43.7	.....	70	11	14	14	37	4.36	.....	1.50	1.0	9	3	11	16	se.	Agent, M. C. R. R.
West Branch	Ogemaw	973	7	38.2	.....	59	7	21	25†	26	.....	.....	.....	.....	.....	5	15	10	n.	Agent, D. S. S. & A. Ry.
Wetmore	Alger	878	12	38.6	+ 7.2	59	11	12	19	37	4.57	+ 1.68	2.40	8.0	5	9	0	21	s.	Robert Carlson.
Whitefish	Chippewa	610	19	38.9	+ 4.6	60	15	11	23	32	2.14	− 1.24	0.53	6.7	11	7	2	21	se.	T. C. Mathews.
Woodlawn	Montmorency	.....	7	37.4	.....	65	8	6	23†	36	3.38	.....	1.20	5.5	11	6	5	19	sw.	Orin J. Bemiss.
Ypsilanti	Washtenaw	736	24	44.0	+ 6.4	71	14	18	24	30	5.01	+ 2.03	2.65	0.2	11	4	21	5	sw.	
Ohio.																				
Akron	Summit	1,081	23	47.8	+ 7.6	73	13	24	24	27	2.39	− 0.38	0.76	0.3	11	14	0	16	s.	Prof. C. R. Olin.
Benton Ridge	Hancock	800	17	48.8	+ 8.4	73	14	23	24	30	3.71	+ 0.95	1.20	T.	8	12	7	11	sw.	J. W. Powell.
Bowling Green	Wood	670	17	46.9	+ 7.6	73	14	24	24†	30	4.86	+ 2.16	1.80	T.	6	9	12	9	sw.	C. G. Housekeeper.
Bucyrus	Crawford	1,000	11	48.6	+ 9.1	72	14	21	25†	34	3.87	+ 1.78	0.75	.....	11	10	10	10	sw.	J. R. Hopley.
Cleveland (1)	Cuyhoga	762	39	47.7	+ 7.3	72	13	30	17	35	3.28	+ 0.53	0.87	0.8	15	8	9	13	sw.	U. S. Weather Bureau.
Cleveland (2)§	do	754	13	46.6	+ 6.1	72	14	29	24†	30	3.71	+ 1.69	0.82	2.7	12	14	3	13	sw.	F. Odenbach, S. J.
Defiance	Defiance	712	16	48.0	+ 8.5	73	14	22	24†	35	3.94	+ 1.35	1.60	T.	9	15	5	10	sw.	J. F. Heilshorn.
Findlay	Hancock	776	20	46.6	+ 6.4	75	14	22	26	40	3.49	+ 0.72	1.04	0.5	13	14	7	9	sw.	Dr. E. A. Moser.
Fremont§	Sandusky	.....	9	48.8	.....	75	13†	27	26†	31	4.34	.....	2.08	T.	10	14	6	10	sw.	E. S. Thomas.
Hedges	Paulding	725	12	48.1	+ 8.4	73	14	21	24	32	3.94	+ 1.56	2.00	T.	10	17	5	8	sw.	Charles Stutzman.
Hillhouse	Lake	1,000	18	47.8	+ 8.7	74	14	21	25	32	3.04	− 0.45	0.60	1.0	9	12	7	11	w.	J. W. Doncaster.
Hiram	Portage	1,260	25	46.6	+ 7.7	72	13	23	24	37	3.31	− 0.16	0.68	3.0	13	8	11	11	nw.	George H. Colton.
Hudson	Summit	1,153	15	45.6	+ 5.8	70	13†	20	25†	36	3.28	− 0.18	0.75	T.	11	14	9	7	s.	W. I. Chamberlain.
Lima	Allen	875	9	49.0	.....	72	13†	21	24	30	2.88	.....	1.21	T.	7	16	4	10	w.	Miss Ollie De Long.
Medina	Medina	944	15	47.0	+ 6.1	74	13	20	25	34	3.44	+ 0.48	0.72	4.0	11	15	3	12	sw.	F. W. Clark.
Montpelier	Williams	.....	18	46.8	+ 8.9	71	11†	21	23	32	4.79	+ 1.83	2.00	2.0	9	12	5	13	s.	G. L. Laser.
Napoleon	Henry	680	17	48.2	+ 8.3	75	14	24	23†	32	4.42	+ 2.00	1.75	T.	10	12	7	11	s.	A. C. Senter.
New Bremen	Auglaize	1,038	16	49.4	+ 8.1	73	13†	21	24	31	2.57	− 0.12	1.11	0.0	9	15	8	7	sw.	Lillian Grothaus.
North Royalton	Cuyahoga	1,000	17	48.1	+ 8.4	72	14	24	25	34	4.04	+ 1.33	0.75	1.0	10	12	8	10	w.	W. S. Edgerton.
Norwalk	Huron	719	16	48.8	+ 8.0	76	14	23	25†	33	3.84	+ 1.30	0.74	0.0	11	13	6	11	sw.	A. Sheldon.
Oberlin	Lorain	855	27	47.8	+ 7.9	74	14	23	25†	34	3.80	+ 1.01	1.13	T.	7	15	3	12	sw.	Prof. F. F. Jewett.
Ottawa	Putnam	720	15	47.8	+ 6.5	74	13†	22	24	33	4.30	+ 1.33	1.87	T.	9	3	10	17	w.	John T. Maidlow.
Rocky Ridge	Ottawa	590	16	49.2[c]	+ 8.6	75[c]	14	25[c]	30	31[c]	3.91[c]	+ 1.26	1.93[c]	T.[c]	9[c]	9[c]	3[c]	14[c]	s.	Anson Green.
Rome	Ashtabula	.....	7	45.5	.....	76	1	18	30	41	2.66	.....	0.54	3.0	8	.....	.....	.....	.....	G. H. Crosby.
Sandusky	Erie	629	33	48.4	+ 7.6	73	14	31	26	32	3.67	+ 0.93	1.31	T.	10	7	11	12	sw.	U. S. Weather Bureau.
Tiffin	Seneca	775	24	48.3	+ 7.9	72	14	27	23†	29	3.42	+ 0.53	1.05	T.	15	11	7	12	s.	T. H. Sonnedecker.
Toledo (1)	Lucas	628	39	46.8	+ 7.1	72	14	26	23	31	4.34	+ 1.69	2.44	T.	13	9	10	11	sw.	U. S. Weather Bureau.
Toledo (2)§	do	606	6	47.3	.....	73	14	25	23†	31	3.79	.....	2.18	T.	10	11	6	13	s.	J. A. Krance.

TABLE 1.—*Climatological data for November, 1909. District No. 4*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Ohio—Cont'd.																			
Upper Sandusky	Wyandot	854	27	50.3	+ 9.3	76	1	23	24	38	2.90	+ 0.13	0.67	T.	8	14	3	13	sw.	R. S. Kiefer.
Vickery	Sandusky	588	17	48.2	+ 8.2	75	13†	24	26†	34	4.37	+ 1.98	1.55	T.	12	9	11	10	s.	John W. Barr.
Wauseon	Fulton	780	40	46.4	+ 9.4	75	14	22	30	33	4.85	+ 1.65	2.34	0.8	14	5	14	11	s.	Thomas Mikesell.
Wellington[a]	Lorain	856	17	48.0	+ 7.2	71	13†	23	24	30	3.40	+ 0.77	1.00	T.	9	8	3	18	sw.	W. D. Warren.
Willoughby	Lake										2.95	+ 0.47	0.64	.....	7	4	10	16	n.	C. J. Richardson.
Pennsylvania.																				
Erie	Erie	713	36	46.8	+ 5.7	72	11	24	24	33	2.60	− 1.01	0.67	2.5	14	7	11	12	s.	U. S. Weather Bureau.
New York.																				
Adams Center	Jefferson	540	18	42.8	.....	74	2	17	24	31	4.57	+ 1.09	1.04	8.5	13	10	8	12	s.	A. E. Cooley.
Angelica	Allegany	1,340	26	42.0	+ 6.1	69	1	16	30	41	1.36	− 1.10	0.48	2.5	12	9	6	15	w.	Charles P. Arnold.
Appleton	Niagara	270	18	43.4	+ 3.4	71	11	24	25	31	2.90	+ 0.42	1.56	4.0	9	6	9	15	sw.	H. A. Van Wagoner.
Auburn	Cayuga	715	40	43.9	+ 5.5	77	1	20	24†	40	1.57	− 1.46	0.32	5.0	11	17	4	9	s.	A. H. Underwood.
Avon	Livingston	585	14	44.0	+ 5.5	73	1	23	25	36	1.61	− 0.44	0.68	T.	8	6	7	17	.....	W. G. Markham.
Benson Mines	St. Lawrence		1																	R. C. Folger.
Blue Mountain Lake	Hamilton	1,750	9								2.25	− 0.55	1.65	6.0	4	9	5	16	w.	B. F. Merwin.
Brockport	Monroe	537	13	44.8	+ 6.8	72	1	24	25	30	1.50	− 1.25	0.60	2.0	12	7	6	17	s.	W. H. Lennon.
Buffalo	Erie	767	58	44.8	+ 5.5	70	1	22	25	30	3.51	+ 0.16	1.65	4.6	11	6	7	17	s.	U. S. Weather Bureau
Canton	St. Lawrence	448	15	37.2	+ 3.3	69	1	12	27	37	3.35	− 0.06	1.33	7.7	16	9	5	16	sw.	Do.
Cape Vincent	Jefferson	246	4	39.6	.....	69	1	17	23	32	3.23	.....	1.00	0.8	13	6	15	9	sw.	V. M. Rice.
Carvers Falls	Washington	243	11	38.8	+ 4.3	63	1†	18	9†	33	1.76	− 0.46	1.06	4.0	4	15	5	10	n.	W. Fancher.
Chazy	Clinton	151	12	38.2	+ 4.3	67	15	10	29†	38	1.46	.....	0.50	4.0	5	4	2	24	n.	W. R. North.
Dannemora	do	1,490	4	36.6	.....	63	15	8	24	34	1.91	.....	0.70	4.0	8	8	4	18	w.	W. N. Thayer.
Elba	Genesee	500	10	42.4	+ 4.4	71	1	21	24†	38	1.80	− 0.27	0.65	4.0	5	13	9	8	sw.	Jos. S. Wilfert.
Faust	Franklin	1,552	9																	Aaron W. Maddox.
Fayetteville	Onondaga	530	8	43.8	.....	74	1	16	24	37	1.99	− 0.62	0.39	3.5	13	11	4	15	nw.	D. H. Wells.
Gabriels	Franklin	1,729	7	36.4[a]	.....	70[a]	1	3[a]	30	41[a]	3.15	.....	1.00	11.9	10	9	5	16	sw.	W. S. Everham.
Harkness	Clinton	622	6	38.6	.....	70	12	8	30	31	1.71	.....	0.75	8.0	8	22	5	3	sw.	J. W. Harkness.
Hemlock Lake	Livingston	900	11	42.4	+ 3.5	68	1	21	25	27	1.37	− 0.35	0.64	0.0	3	10	8	12	s.	D. H. Westbury.
Hunt	do	1,321	10	45.6	+ 7.0	78	1	22	25	40	1.20	− 0.66	0.50	0.0	4	11	10	9	sw.	W. S. Barrager.
Ithaca	Tompkins	928	31	44.0	+ 6.4	75	1	20	25	37	1.08	− 1.50	0.37	4.2	14	7	6	17	se.	U. S. Weather Bureau.
Keene Valley	Essex	1,000	11	37.8	+ 4.5	72	1	6	30	40	2.40	− 0.22	1.11	11.0	13	12	6	12	s.	E. R. Wells.
Keuka Park	Yates	750	63	44.5	+ 5.0	75	1	21	24	35	0.72	− 1.41	0.17	4.0	15	13	2	15	w.	Dean L. Myers.
King Ferry	Cayuga		9								1.02	− 1.17	0.35	3.7	10	11	5	14	se.	L. A. Goodyear.
Lake George	Warren	350	4	41.8	+ 4.8	67	1†	17	19	31	1.83	− 1.24	0.75	4.8	6	8	10	12	s.	Charles Forsell.
Lake Placid Club	Essex	1 864	1	33.6	.....	60	12	6	30	30	1.65	.....	0.60	10.0	12	9	9	12	w.	Henry Van Hoevenberg.
Le Roy	Genesee	920	19	44.6	+ 7.2	76	1	22	25	39	1.34	− 1.23	0.33	2.1	13	5	6	19	sw.	F. W. Ball.
Lockport	Niagara	650	22	43.6[b]	+ 4.8	68[b]	1	24[b]	23†	31	2.75	+ 0.40	1.21	6.0	10	13	1	16	sw.	J. E. Wakeman.
Lowville	Lewis	900	42	38.2	+ 3.7	72	1	15	27	35	2.39	− 1.05	0.80	9.0	7	14	2	14	w.	Charles J. Rice.
Lyndonville	Orleans		9								2.52	− 0.03	1.59	.....	2	10	2	18	sw.	Milton St. John.
Moira	Franklin	200	9	36.6	+ 2.0	68	11	11	24	30	1.88	− 0.60	0.61	5.0	6	7	9	14	w.	C. E. McBride.
Nehasane	Hamilton	1,750	1	35.4	.....	68	1	1	30	39	4.09	.....	1.15	12.8	14	13	2	15	w.	A. C. Heyburn.
North Hammond	St. Lawrence	300	20																	
North Lake	Herkimer	1,822	8																	H. A. Paulls.
Ogdensburg	St. Lawrence	175	17	39.2	+ 3.6	64	1†	13	23†	41	2.83	+ 0.29	0.98	2.4	11	7	15	8	e.	State Hospital.
Old Forge	Herkimer	1,733	1	36.6	.....	70	1	5	30	41	3.57	.....	1.00	11.0	15	7	3	20	w.	Stuart W. Nelson.
Oswego	Oswego	335	39	43.4	+ 4.3	75	1	22	24	29	2.09	− 1.32	0.39	6.6	16	6	8	16	s.	U. S. Weather Bureau.
Otto	Cattaraugus	1,410	5	45.1	.....	70	1	18	25	34	2.74	.....	1.20	.....	7	14	7	9	.....	
Palermo	Oswego	460	50								1.58	− 2.03	0.25	4.0	15	11	8	11	se.	E. B. Bartlett.
Perry City	Schuyler	1,038	19	41.5	+ 5.6	71	12	18	7†	33	1.13	− 1.47	0.48	5.6	7	7	6	17	sw.	W. H. Jeffers.
Philadelphia	Jefferson	485	3	41.0	.....	73	1	14	27	34	3.28	.....	0.93	3.0	13	7	7	16	s.	E. D. Babcock.
Plattsburg	Clinton	170	50	37.4	+ 2.7	67	15	− 4	26	40	1.45	− 0.93	0.90	3.0	6	9	12	9	nw.	T. P. Davison.
Potsdam	St. Lawrence	300	33	38.6	+ 4.9	68	1	13	26	36	2.25	+ 0.03	0.95	8.0	6	7	7	16	sw.	Lloyd W. Weed.
Raquette Lake	Hamilton		1	36.9	.....	63	1	13	30	29	3.97	.....	0.88	6.0	14	10	1	19	sw.	R. J. Dunning.
Rochester	Monroe	523	80	44.6	+ 6.7	75	1	24	25	28	1.40	− 1.36	0.44	1.7	14	8	3	19	sw.	U. S. Weather Bureau.
Romulus	Seneca	719	17	44.2	+ 5.0	72	11†	20	24	34	0.89	− 1.55	0.46	4.6	2	7	7	16	nw.	
Scottsville	Monroe										1.34	.....	0.33	.....	5					F. Budlong.
Shortsville	Ontario	740	10	45.0	+ 6.6	75	1	23	25	35	0.77	− 1.07	0.24	2.4	5	12	7	11	s.	C. H. Latting.
Skaneateles	Onondaga		9								2.69	− 0.60	0.40	.....	17					Edward Conson.
Syracuse	do	507	7	43.6	+ 4.9	75	1	18	25	43	1.29	− 1.41	0.38	4.8	12	7	7	16	s.	U. S. Weather Bureau.
Ticonderoga	Essex	344	11	40.8	+ 4.8	65	1†	15	30	35	0.90	− 2.10	0.50	2.0	6	13	5	12	n.	Eva M. De Lano.
Trudeau	do	1,620	16																	
Volusia	Chautauqua	1,167	10	45.6	+ 8.2	74	11	17	24	38	2.56	− 1.28	0.48	3.0	11	7	9	14	s.	Benjamin Breads.
Watertown	Jefferson	737	16	41.5	+ 5.5	71	1	16	24	40	2.28	− 1.13	0.62	5.0	12	11	4	15	nw.	H. P. Dunlap.
Wedgwood	Schuyler	1,430	20	42.2	+ 5.8	73	1	19	18†	36	1.64	− 0.87	0.67	5.5	14	11	7	12	sw.	O. F. Corwin.
Westfield	Chautauqua	837	13	46.3	+ 6.7	72	1	20	24	37	2.81	− 0.61	0.49	0.2	11	.....	.....	.....	.....	John R. Rogers.
Youngstown	Niagara		7								2.91	.....	1.80	4.0	5					B. V. Brookins.
Vermont.																				
Burlington	Chittenden	404	3	38.2	+ 4.5	65	12	11	30	32	1.66	− 0.92	0.45	5.2	12	5	8	17	s.	U. S. Weather Bureau.
Cornwall	Addison	507	17	40.0	+ 3.9	67	12	16	19†	41	1.54	− 1.72	0.40	4.0	9	9	9	12	s.	C. H. Lane.
Enosburg Falls	Franklin	601	19	37.4	+ 2.9	68	12	11	30	33	3.33	− 0.42	1.28	6.0	16	8	4	18	s.	L. H. Pomeroy.
Northfield	Washington	876	24	36.3	+ 4.3	70	12	7	30	34	2.02	− 0.58	0.88	7.4	18	5	6	19	n.	U. S. Weather Bureau.
Wells	Rutland	750	18	38.0	+ 3.1	64	13	10	30	26	1.84	− 1.90	0.65	5.0	7	8	19	12	s.	E. R. Pember.

[a] Precipitation included in that of the next measurement.
[b] Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
= Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 4, Lake Region.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Minnesota.																																	
Duluth	Lake	.04									.01			.51	.76		.72		T.	.02	.01	T.	.04	.03		T.	.02	T.					2.16
Floodwood	do														1.18		.50									.51				T.		2.19
Mt. Iron	do										.05			.09	.73	T.	.02		T.	T.		T.	.01	.02	T.		.15	.24		.01		1.32
Stephen's Mine	do										T.			.09	.73	T.	.13	T.	T.	T.	.28	T.	T.	.08	.08		.01	.12		T.		1.52
Two Harbors	do	T.												.27	1.20		4.10		T.	T.	T.		T.	.07	T.		T.			T.		5.64
Wisconsin.																																	
Appleton	Fox	.42	.10			.08		.03				.75		.30	.06		.73	.01		.02			.47			.01							2.98
Ashland	Lake	.78					T.					T.		.50	.28		.89	.02					T.	T.	T.								2.47
Cecil	Fox	1.20	.08									.49	1.16	.09			.63	T.			.09		.04	T.	T.								3.78
Chilton	Lake	.30	.40		T.	.02			.23		T.	.42		.34	.05		.93	T.		T.	T.		1.05			.17			.30				4.21
Crandon	Fox	.80									.05	.60		1.10	.15		.50	.20										T.					3.40
Florence	Menominee	1.56										*	.50	*	1.38		*	.90							T.	.10	1.26						5.60
Fond du Lac	Fox	.55	.10			.02					T.	.31		.25	.15		.30	.25				T.	.39			.30			.28				2.88
Grand River Locks	do	.35										.35		.20	.12		.60	T.				.03	.40			.20			.15				2.40
Green Bay	Lake	.34						T.			T.	.39		.18	.17	.02	.60		T.		T.	.04	.53		.16	.10			.02				2.55
Herbster	do																																4.17
Iron River	do	.95	.05	T.										.28	.80		.30										.25	.25					2.88
Kewaunee	do	.10	.05					.01				.60		.30	.20		.22	T.	T.				.35		.25				.15				2.23
Manitowoc	do	.18			T.			.04			T.	.13	.23	.38	.07	*	.63		T.				.85			.14			.25				2.90
Menasha	Fox	.49			T.			T.			T.	.27		.19			.46						.26			.06			.03				1.76
Menominee Falls	Lake	.26	.20									.35		.42	.08		.83			T.		T.	.42			.10			.04				2.70
Milwaukee	do	.27			T.	T.		T.			T.	.53	.02	.23	.04	T.	.55	T.	T.			.01	.58		.04				.02				2.29
New London	Fox	.65										.60		.10			.70						.43			.30							2.78
Oconto	Lake	.05	.12								T.	.64	.19	T.	.16		.85				.27	T.				.22	.15						2.65
Oshkosh	Fox	.42							.10			.20		.30			.63						.75										2.40
Pine River	do	.42			T.						T.	.30		.21	T.		.78			T.	T.		.38		.03	.09			.08				2.29
Plum Island	Lake	.33	.19					T.			T.	.08	.10	.04	.13		.45	.04		.05			.06		T.	T.			.06				1.53
Port Washington	do	.38										.60		.52	.10		.70						.60						.60				3.50
Racine	do	.22			.12			.03				.07	.12	.27	.05		.97	T.		T.		.03	1.00			T.			.12				3.00
Sheboygan	do	.14	.04			.03			T.		T.	.25	.20	.52	.07		.80	T.		T.		T.	.80			.09			.08				3.02
Sturgeon Bay	do	.63	.09									.42		.45	.02		.71	.22	T.		.28		.19		T.	.06			.08				3.15
Superior	do	.07	.05											.24	1.56	.05	.07	.08			.02	T.	.01	.04	.06	T.		.03			T.		2.28
Waupaca	Fox	.70			.03							.53		.45	.02		.45						.34		.17								2.69
Illinois.																																	
Chicago	Lake	.53						.55	.14		T.	.12	.05	.02	.05	T.	.96	T.				.16	1.15		.01				.10				3.84
Indiana.																																	
Auburn	Maumee		.22					.23	.22	.04		T.	T.		.21	.54	.23	.06	T.		T.	.88	1.18						T.			3.81
Elkhart	St. Joseph	.38	.05			T.		.02	.82		T.	T.	.02	.14	T.	.19	.94	.02	T.			.03	1.86					T.	.02			4.49
Fort Wayne	Maumee	.29	.05			T.		.35	.23	T.			.02		.06	.10	.46	.05				.27	1.77					T.	.03			3.68
Hammond	Lake							.70	.60								.92	1.28				.10	1.90					.10				5.60
Lima	St. Joseph				T.				1.08		T.			.14		.14		1.17					1.74										4.27
South Bend	do	.05	.28						.34			T.	.07	.06		.08	.70	.53	.07			.01	1.34	1.15									4.68
Michigan.																																	
Adrian	Raisin	.85				.11		.40	.38			.05		.10		.58						.75	1.70										4.92
Agricultural College	Grand	.18	.17					.01	.66		.02		.02	.06	.04		1.05			T.		.01	1.40						.12				3.74
Allegan	Kalamazoo	.20	.31	T.		.08	T.	T.	.43			T.	.44	.20		1.62	.10				T.	.54						T.				3.92
Alma	Saginaw	.55	.15					T.	.15				T.		.11	1.70	T.						.27										2.93
Alpena	Lake	.08	.08	T.	T.						T.	.13		.04	T.		.79	.05	.08	T.	T.	.05	.91						T.				2.21
Ann Arbor	Huron	.57	.02				T.	.07	.46	.02				.02	T.	.02	.74	.01		.01		.14	2.12	.14				T.					4.34
Arbela	Saginaw	.61	.15						.72				.12			.35	1.15	T.	T.	.14		.16	1.62	.14					.15				5.31
Ball Mountain	Clinton																																
Baraga	Lake																																
Battle Creek	Kalamazoo	.28	.14			.18	T.	T.	.68				T.	.15	.08		1.25	T.	T.			.16	1.96						T.				4.88
Bay City	Saginaw		1.25						1.00				.50	.10	.15		1.50	T.		T.			.30										4.80
Benzonia	Betsey's											1.38	.12		.47		.86	.25		.25			.60						.35				4.28
Bergland	Ontonagon	1.05	.20									.21		.42	.34		.31	.34		.09			T.		.09								3.05
Berlin	Clinton	.66	.04				.02		.54		T.	T.			.01	.02	.50	.05		.04		.04	2.01	.05					.03				4.01
Big Rapids	Muskegon	.15	.11						.05			.09	.34	.10	.25		1.11	.08	T.	.14		.02	.60						1.05				4.09
Blaney	Manistique	.04	.06								.01	.09				.04	.20	.10															0.54
Bloomingdale	Lake	.15	.25			T.	T.	T.	.50			T.	.02		T.		.59	T.	T.			T.	1.00			T.				T.			2.51
Cadillac	Manistee	.24	.06						.05		.07	.30	.24		.47		.60	.10		.18			.50			.07			.35				3.23
Calumet	Lake	.69	.08		.02			T.				.02	.15	.73	.33	T.	.64	.12	T.	.25	T.	.04	.04	.04	.16	.17					T.		3.48
Cassopolis	St. Joseph	.26	.10					.05	.95						.10			.05					2.10										3.61
Charlevoix	Lake	.12										.71	.31	.30			.42			T.			.20										2.06
Charlotte	Kalamazoo	.30	.18			.32		T.	.92					.18	.06	T.	1.18					.08	1.52										4.74
Chatham	Lake		.62									.60					.45	.65										.02		.03			2.37
Cheboygan	Cheboygan	T.	.90				T.		T.			.65	.15	.38		.65			T.				.50										3.23
Clinton	Raisin	.52				.14	.05	T.	.59					.03	T.		.59	.16				T.	2.20	.30									4.58
Coldwater	St. Joseph	.40	.21				.08	T.	.70				.05	.10	T.	.12	1.31	.03					2.00	.13									5.13
Concord	Kalamazoo																																
Croton	Muskegon	.18	.26						.38		T.	.05	.41	.04	.20		.80	T.		.20			.40			T.			.07				2.99
Deer Park	Lake	.25	.40		.15			.10				.30	.25	T.	.40		.60	.30		T.	.10	T.											2.85
Detour	St. Mary's		.30	.10									.30		.20	.20	.40	.40	.40				.20										2.50
Detroit	Detroit	.74	T.	T.		T.		.01	.49		T.		T.	T.	.02		.61	T.	T.	T.		.23	2.59						.01			4.70
Durand	Saginaw	.15	.59					T.	.82				T.	.03		T.	1.58	.02		T.			.15	.05	T.				.02				3.41
Eagle Harbor	Lake	1.25	.15					T.	T.			T.	.05	.90	.70		.65	T.	T.	.10		T.	.08	T.	.38		.05	T.					4.31
East Tawas	do	.35	.15										.15		.25		1.0	T.					.30						.20				2.40
Eloise	Rouge																																
Escanaba	Lake	.53	.26				T.				T.	.69		.08	.22		1.36	.11	.12	.04	.06			T.	.02				T.				3.49
Ewen	Ontonagon	1.24					T.					.22		1.56	.64		1.00	.50	.20	.10	T.	.10	.05	T.	.30								5.91
Flint	Saginaw	.25	.47						.50				.15		.05		1.40					.08	1.40	.10					.07				4.47
Frankfort	Betsey's		.20								1.05						.35		.10				.30			.10		.10	.20				2.40
Ganges	Lake	.25	.34			.04	.01	.06					.21	.10	.10		1.48		.02	.05		.05	.99										3.70
Gaylord	Cheboygan																																
Gladwin	Saginaw	.80											.90	.75	.20		.80			T.			.15										3.60
Grand Haven	Grand	.25	.05	T.	.01	.16		.04	.01		T.	.26	.01	.02	.18		.79	.05	.13	.05		.01	.40			T.			.05				2.47
Grand Marais	Lake	T.	.80								.15			.20	.10	.20	.30	.10	.05	.10		.08											2.08
Grand Rapids	Grand	.33	.05	T.		.05		.10	.01		T.	.19	.02	.14	.27		1.34	T.	.01	.14		.05	.53						T.				3.23
Grape	Raisin	.61	.01			.10	T.	.04	.40				T.	.03			.50	T.				.11	2.20	.04					T.				4.04
Grass Lake	Grand	.35	.27			.23		.38	.40			T.		.07	.12	.07	.90	.05				.08	.95	.16									4.03
Grayling	Au Sable	T.											1.00		.20			.30	.30				1.00	T.				T.	.50				3.30
Harbor Beach	Lake		.70						.40						.10		1.00			.10		.10	.80										3.20
Harrison	Saginaw											.60			.38		.42						.60										2.00
Harrisville	Lake	.20	.08		T.								.10	.04	T.	T.	.85	.10		.04	.06	.08	.60	.10					.07				2.32
Hart	Pentwater																																
Hayes	Pigeon	.54	.19						.52								1.62						.30						.50				3.67
Highland	Huron	.28	.41				T.	.04	.38					.13	.14		1.01					.10	1.90	.10					.12				4.61
Hillsdale	St. Joseph	.28	.08			.08	T.	.28	.75		T.	T.	T.		.17	T.	.97	.04	T.			.11	2.35			T.							5.11
Holland	Lake	.21	.20			.12		.01	.40			.15	.08	.01	.13		1.10	.03		.12		.08	.98						T.				3.62
Houghton	do	.84	.04				.09	T.				.19	T.	1.39	.14	T.	.66	.13	.06	.04	.05	.01	.01	.12	.16	T.	T.	.02	T.		T.		3.95
Howell	Saginaw	.50	.40					.05	.45			T.	.02	T.	.04							.10	2.00	.04									3.60
Humboldt	Escanaba																																
Iron Mountain	Menominee											.47		.53			1.07		.21	.07					.14								2.49
Iron River	do	1.25	T.									1.14	.16	1.00	1.60		.30	.40												T.			5.85

TABLE 2.—*Daily precipitation for November, 1909. District No. 4*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Michigan—Cont'd.																																	
Ironwood	Lake	5.61	.41								.01		.25	.03			.28	.17	T.	T.					T.	.01	T.		.03				6.80
Ishpeming	Escanaba	.60	.10					T.			.02	.40	.05	.60	.30		.70	.70	.02	T.				.01	.04	T.						3.54
Isle Royale	Lake																																
Ivan	Manistee	T.	.10		T.						T.	.15	.12	T.	.25		.44	.08	.14	.04	T.	.01	.50			T.			.35				2.18
Jackson	Grand																																
Jeddo	St. Clair	.40	.08	.03				.06	.68				T.		T.		.65	.09		.10		T.	1.25	.32					.08				3.74
Kalamazoo	Kalamazoo	.25	.27				T.	T.	.97				T.	.10	.05		.97	T.				.20	.97						T.				3.78
Lansing	Grand	.42	.19					T.	.62				.03	.15	.05		1.13	T.		T.		.08	1.47	T.		T.			T.				4.14
Lapeer	Saginaw	.34	.36					.05	.39						.47		.82	.21		T.			1.20	.05					.20				4.09
Ludington	Pere Marquette	.02										.49		T.		.37	.75			.02			.12							.21			1.98
Mackinac Island	Lake																																
Mackinaw	...do	.08	.72		.04		T.	T.	.26		T.	.27	.18	.14	.08		.20	.35	T.				T.		T.				T.				2.32
Mancelona	...do		.25					.02				.15		.10	.03		.15	.10	T.		.01	T.	.50						.10				1.41
Manistee	Manistee																																
Maple Ridge	Lake	.81										.75		.08	.32		.40	.80															3.16
Marquette	...do	.67		T.	T.		T.					.31		1.68	.09	T.	.92	.40	.01	.01	T.	T.	T.	T.	T.	T.	T.	T.	.01				4.10
Menominee	Menominee	.64									T.	.41	.05	.24			T.		T.				T.		.18			T.				1.52
Midland	Saginaw																																
Montague	White	.17				.12					.11	.16			.31		.10					.50											1.47
Morenci	Maumee	1.01	.01			.11		.09	.67			T.	.02		.02	.07	.62	.02				.06	2.30							.01			5.01
Mt. Clemens	Clinton	.40	.30	T.				.10	.40					T.	T.	.05	.80	.10		.05		.30	.20	.05		T.			.05				2.80
Mt. Pleasant	Saginaw	.10	.19					.23					.17				.96	T.	T.				.30										1.95
Muskegon	Muskegon	.20				T.			.20			.50			.20		1.00	T.		.10			1.20					T.				3.40
Newberry	Taquemenon																																
Old Mission	Lake		.12									.78		.20	.10		.46	.05		.08													1.79
Olivet	Kalamazoo	.40	.33			.32		.01	.96				.26		.06	.01	1.33	.01				.27	.95	.05									4.96
Omer	Lake	.25	.58					.28				.20					.60																1.91
Onaway	Cheboygan	.50										.60			.40		.10						.30										1.90
Ovid	Grand																																
Owosso	Saginaw	.30	.38						.96					.11	.04		1.39	.02		.01		.08	1.52	.02					.04				4.87
Petoskey	Lake																																
Plymouth	Rouge																																
Pontiac	Clinton	.45	.10	T.				.05	.35		T.	.02	T.		T.		.70	T.		.02		.10	2.10	.10				T.				3.99
Port Austin	Lake																																
Port Huron	St. Clair	.32	.01	.03				.03	.56		T.	T.	T.		.02		.47	T.	T.	.04		.04	1.80	T.					.07				3.39
Powers	Lake																																
Reed City	Muskegon																																
Roscommon	Au Sable	T.	.10									.18	.35	.20	.10		.90	T.	T.	.10			.27						.12				2.32
Saginaw	Saginaw	.27	.40	T.					.43			T.	.06	.15	.05	.03	1.75	T.	T.	.05			.88	.05					.20				4.32
Saginaw, W. S.	...do	.27	.21						.44			T.	.06	.10	.02	.16	1.11	T.		.03		T.	.77	.06		T.			.05				3.28
St. Ignace	Lake		.65			.10			.10			.34		.15	T.		.02	.05		.05	.60		.02										2.08
St. James	...do	.22	.20									.20	.27	.10	.20		.21																1.40
St. Johns	Grand																																
St. Joseph	St. Joseph	.04						.34	1.92				.05	.02	.06		.75	T.				.03	1.32						.02				4.55
Sandusky	Lake	.40	.45						.65						.15	1.25	.10					.90	.20										4.10
Saranac	Grand	.20	.20			.01			.30				.09	.25		.14	1.19					.14	.85										3.37
Sault Ste. Marie	St. Mary's	.19	.32	.02	T.			.20	T.			.44		.07	.16	T.	.17	.03	.10	.34					T.			.10	T.				2.14
South Haven	Lake		.60			.65	.40							.30	.40		1.00																3.35
Stanton	Grand																																
Thomaston	Lake	1.30	.30								T.	.15		.40			.60	.40	.20														3.35
Thornville	Saginaw	.58	.18					T.	.65						.30	.05	.10		.18		.03	.24	.34						.10				2.75
Traverse City	Lake	.17	.04									.24	.53	.28			.20						.60						.25				2.31
Vassar	Saginaw																																
Victoria	Ontonagon	.88	.07									.24		1.14	.27		.46	.28	.02	.05		.01	.01	T.	.11	.14	T.	T.	.05				3.73
Wasepi	St. Joseph	.22	.12				.01	.03	.85				.10	.08	.10	.30	.83	.07				.05	2.13	.05					T.				4.94
Watersmeet	Ontonagon	1.44	.47								T.	.41	.06	1.45	.32		.45	.12	.05	.05		T.	T.	T.	.13				.02				4.97
Webberville	Grand	.28	.25					T.	.62				.02	T.	.03	.15	1.41	T.				.10	1.50						T.				4.36
West Branch	Lake																																
Wetmore	...do	1.07										.30			2.40		.50	.30															4.57
Whitefish Point	...do	.40	.53		.04				.09				T.			T.	.40	.25	.01	T.	.35	.03			T.	.01		.03					2.14
Woodlawn	Au Sable	.05	.41			T.						.31	.32	.05	.23		.54	.10	.12				1.20						.05				3.38
Ypsilanti	Huron	.71	.05	T.			T.	.10	.57		.01	T.	T.			.05	.62	.02				.17	2.65	.06					T.				5.01
Ohio.																																	
Akron‖	Lake		.29	T.	T.				.09	.22	.01	T.		T.		.06	.37	.22	.03	T.			.76	.31						.03			2.39
Benton Ridge	Maumee	.60	T.	T.		T.		T.	.44		T.		T.				.57	.11	T.			.10	1.20	.45					.24				3.71
Bowling Green	Lake	.77				T.	T.		.64				T.	T.			1.30	.02				.33	1.80										4.86
Bucyrus‖	Sandusky	T.	.40			T.	.12	T.	.75				.20			.05	.50	.20				.20	.65	.60						.20			3.87
Cleveland (1)	Lake	.28	T.	T.		.08	.02	.38	.49				.01			.05	.61	.08	.01	.01		.42	.78	.02					.04				3.28
Cleveland (2)	...do	.31		T.			.06	.25	.72		T.		.02			.09	.61	.23	T.	.02		.82	.55	T.					.03				3.71
Defiance‖	Maumee	.78						.12	.61		T.		T.		T.	.04	.45	.01	T.			.24	1.60	.09						T.			3.94
Findlay	...do		.53				.01		.37	.15		T.		.02		.04	.35	.20	.05			.05	.62	1.04						.06			3.49
Fremont	Sandusky	.47				.05	.04	*	.90				.05		*	.05	.34	.25				*	2.08						.11				4.34
Hedges	Maumee	.57						.07	.39						.04	.10	.50	.07	T.			.15	2.00	.05									3.94
Hillhouse	Lake		.27	T.					.55				T.			T.	.40	.60	.04	T.	T.	.15	.48	.46						.09			3.04
Hiram	...do		.42	T.			.15		.68					.03		.10	.40	.28	.17		.01	.26	.52	.24						.05			3.31
Hudson	...do	T.	.40				.08		.75				.08			.20	.40	.10				.40	.35	.43						.09			3.28
Lima	Maumee	.43						T.	.26		T.		T.		.07		.49	T.				.10	1.21	.32					T.				2.88
Medina	Lake	T.	.52						.72				.10			.08	.46	.21	.36			.21	.29	.39						.10			3.44
Montpelier	Maumee	.34				T.		.26	.56		T.	T.	.04	T.	.23		.86	.20				.30	2.00						T.				4.79
Napoleon	...do	.60	.07	T.		.01		.12	.68				T.		T.	.11	.35	T.	T.			.35	1.75	.38									4.42
New Bremen	...do	.40		T.				.04	.20						.10		.38	.05				.21	1.11							.08			2.57
North Royalton	Lake		.42						1.00							.13	.53	.23	.10			.30	.75	.43						.15			4.04
Norwalk‖	...do	.10	.40			.08			.53				.05				.45	.28				.60	.55	.74						.06			3.84
Oberlin	...do	T.					T.	T.	1.09								.55	.25	.06			.38	1.13	.34					T.				3.80
Ottawa	Maumee	.70	.03			T.		T.	.72		T.		.05		T.		.64	.02				.20	1.87						T.	.07			4.30
Rocky Ridge	Lake	.38	.03	T.		.11		T.	.48				.03			T.	.74	T.	T.			.18	1.93	T.					.03				3.91
Rome	...do			.23	T.				.53				.02				.54	.30	T.			.29	.45	.30					T.				2.66
Sandusky	...do	.53				.02		.61	.38		T.		T.		.02		.45	.02	T.			.38	1.23						.03				3.67
Tiffin	Sandusky	.43	.10	T.		.05	.04	.16	.54		T.		.03	.01	T.	T.	.38	.17	T.			.35	1.05	.05					.04	.02			3.42
Toledo (1)	Lake	.58	T.	T.		.17	T.	.06	.33	T.			.04	.01	.03	.01	.39	.01	T.			.35	2.35	T.					.01				4.34
Toledo (2)	...do	.52		T.		.17	.02	.03	.24				.03	T.	T.	T.	.38	T.	T.	T.		.21	2.18	T.	T.				.01				3.79
Upper Sandusky	Sandusky	.05	.55	T.	T.			T.	.24								.42	.27	T.			.13	.67	.57									2.90
Vickery	Lake	.51	.02			.10		.05	.83			T.	.05			.05	.55	T.	T.			.50	1.55	.04					.12	T.			4.37
Wauseon‖	Maumee	.91				.03	.02	.07	.53		.01	T.	.06		.03	.03	.50	.08				.22	2.34							.02			4.85
Wellington	Lake	.09	.36						1.00		T.		.05				.46	.35				.12	.67	.30					T.				3.40
Willoughby	...do		.32						.40	.25							.09	.64					.64	.52						.09			2.95
Pennsylvania.																																	
Erie	Lake	.03	.06	T.	.01			T.	.52				.01			.19	.33	.33	.03	T.		.24	.66	.02					.16	.01			2.60
New York.																																	
Adams Center	Ontario		.43	.48	.62	.17			.27							.11	T.	.29	.25	.17		.23	1.04	.11		.40							4.57
Angelica	Genesee		.03		.48	T.			.09	T.						.02	.05	.04	.15	.03		.09	.32	.04			T.			.02			1.36
Appleton	Ontario		T.		.06				.32			T.	T.			.02	.10	T.	T.	.40		.11	1.56	.25					.08				2.90
Auburn	Oswego			T.	.22				.10							.08	.09	.18	.15	.03		.10	.12			.32	T.		.18				1.57
Avon	Genesee		T.		.68				.06				T.				.27	.06	.03	T.		.06	.27	T.		T.				.18			1.61

TABLE 2.—*Daily precipitation for November, 1909. District No. 4*—Continued.

Stations.	River basins.	Day of month.																													Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New York—Cont'd.																																	
Benson Mines	St. Lawrence																		.20	.10			1.65			.30							2.25
Blue Mountain Lake	do			T.	T.																												
Brockport	Ontario		.03		.08				.14							.02	.15	.01	.05	.13		.05	.60	.09						.15		1.50
Buffalo	Erie		.09		.12			T.	.15	T.		T.	T.	T.		.09	.26	.27	T.	.36		.32	1.60	.05			T.		.20			3.51
Canton	St. Lawrence		.05	.05	.20	T.	.01		.33					T.		T.	.12	.26	.02	.03	.01	.06	1.15	.13	.11	.55			.22			3.35
Cape Vincent	do		.08	.03	.58				.47							.08		.30	.02	.12		.03	1.00	.25		.08				.19		3.23
Carvers Falls	Champlain		T.						.20									.14					.36		1.06							1.76
Chazy	do	T.			.18				.40									.08				.50				.30						1.46
Dannemora	do	*	.20	T.	.08	T.	T.	*	.24						T.	T.	*	.24	T.	T.	T.	T.	.25	.10	*	.70			*	.10		1.91
Elba	Ontario		T.		T.				T.				T.			T.	T.	.50	.20	.20		.25	.65									1.80
Faust	St. Lawrence																																
Fayetteville	Oswego		T.	T.	.13	.24			.04	.02				T.	T.	.01	.07	.20	.02	T.		.11	.26	.39		.22	T.			.28		1.99
Gabriels	Champlain		.15	T.	T.			.60							.05			.20	.14	.05		.16	.40	.40		1.00						3.15
Harkness	do		.02		.10				.16									.08	T.				.33	.07	*	.75				.20		1.71
Hemlock Lake	Genesee				T.				.64													.42							.31			1.37
Hunt	do				.50				.10									.32					.28									1.20
Ithaca	Oswego		.01		.15				.12				T.	T.	T.	.01	.01	.10	T.	T.		.05	.14	.05	.03	.34	.02		.04	.01		1.08
Keene Valley	Champlain		.10	.03	.06	.04			.09								T.	.09	.11	T.		.03	.44	.14	.10	1.11	T.			.06		2.40
Keuka Park	Oswego		.01		.04	.02		.02	.02	.03				.01		T.	.01	.05	.11	T.		.04	.17	.01		.15				.03		0.72
King Ferry	do				.06				.09					.02		.04	.11					.13	.22			.16	.04		.15			1.02
Lake George	Champlain		T.		T.		T.		T.									.35		T.			.09	.16	.21	.27	T.			.75		1.83
Lake Placid Club	do		.02	.03	.15	.13	T.		.06				T.			T.			.30	.05	T.	.08	.10	.06	.07	.60						1.65
Le Roy	Genesee		.01		.04				.10				T.			.03	.20	.12	.09	.02		.14	.33	.07					.10	.09		1.34
Lockport	Ontario		.02		T.				.25				T.			.03	.16	*	.13	.48		.14	1.21	.25						.08		2.75
Lowville	do			.12	.40				.25							T.		.05	.11				.65			.80						2.38
Lyndonville	do																			.93		1.59										2.52
Moira	St. Lawrence		.03	T.	39	T.	54									T.	T.	.24	T.				.61	.07					T.			1.88
Nehasane	Ontario		.18	.19	.34	.08	.07		.43				T.	.03		.05	.02	.50	.10			.45	.50			1.15						4.09
North Hammond	St. Lawrence																																
North Lake	Ontario																																
Ogdensburg	St Lawrence		.07	.02	.25	T.			.25						T.	.02		.44	T.	.04	T.	.98	.34			.20			.22			2.83
Old Forge	Ontario		.07	.15	.22	.02			.32							.02	.03	.43	.16	.14		.42	.36	.15		1.00				.08		3.57
Oswego	do		.05	.03	.32		T.		.20			.01	T.			.08	.12	.13	T.	.26	T.	.04	.22	.11	.09	.30			.10	.03		2.09
Otto	Erie			.03	.25									1.20	T.	.52	.39	T.	T.				.10	.25								2.74
Palermo	Oswego		.03	.02	.25	.05	.05			.14						.09	.01	.20	.04	.25			.05	.05		.25				.10		1.58
Perry	do				.12				.06				T.						.08			*	.22			.48				.09		1.13
Philadelphia	St. Lawrence		.17	.11	.46		T.		18							.02	.01	.21	T	.10		.09	.93	.23		.22	T.			.25		3.28
Plattsburg	Champlain				.01	T			3														.40			.90	.05			.06		1.45
Potsdam	St. Lawrence		.08			T.			58	T.			T.			T.		T.	T.	T.		.09	.33	T.	.95					.42		2.25
Raquette Lake	do		.19	.12	.30	.08	.09		.35				*	.11		.04		.35	.21			.30	.70	.26	*	.88						3.97
Rochester	Genesee		.01	T.	.12				.06				.01			.03	.12	.19	.02	.01		.08	.39	.05		.10			.21	T.		1.40
Romulus	Oswego				T.				T.				T.			T.	T.	T.				T.	.43			.46						0.89
Scottsville	Genesee										.19								.33				.29	.28					.25				1.34
Shortsville	Oswego		T.			.11			.03								.18		T.				.21	T.		.24							0.77
Skaneateles	do			.02	.25	.14	T.		.10				T.	.02	T.	.09	.04	.30	.29	.14		.30	.40	.08	.05	.20	.07			.20		2.69
Syracuse	do		T.	T.	.23	T.			.05					T.		.03	.08	.09	.02	T.		.10	.13	.11	.06	.32	T.		.07			1.29
Ticonderoga	Champlain			.01	T.				.02									T.	.02	T.			.50	T.	.25					.10		0.90
Trudeau	do																																
Volusia	Erie		.03	T.	.06				.48				T.			.12	.25	.33	T.	.10		.22	.40	.30						.27		2.56
Watertown	Ontario	T.	.13	.22	.04				.33							T.	.04	.10	.10	.08		.04	.62	.20		.38						2.28
Wedgwood	Oswego		T.		.17	.03			.07	.05			T.			.02	.04	.10	.04	.02		.08	.15	.08		.67				.12		1.64
Westfield	Erie		.13	T.	.16				.37					.02		.16	.49	.17	T.			.39	.48	.31						.13		2.81
Youngstown	Ontario								.70											.24			1.80							.08	.09	2.91
Vermont.																																	
Burlington	Champlain		.08	T.	.18	T.	T.		.19				T.				.01	.05	.01	T.		T.	.13	.09	.25	.45	.06		.14	.02		1.66
Cornwall	do		.10		.15		T.		.25									.34	T.	T.		T.	.10	.15	*	.40			.05			1.54
Enosburg Falls	do	T.	.04	.04	.09	.03	.01		.43				T.		.03			.16	.01		.05	.13	.27	.23	T.	1.28	.23		T.	.30		3.38
Northfield	do	.16	.07	.02	.03	T.		.13			.01			.01	.01	.18	.05	.01	T.	.01		.14	.03	.50	.54			.02	.10			2.02
Wells	do		T.		T.	T.			.17									.16					.06	.05	.50	.65				.25		1.84

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 4, Lake Region.*

Date.	Duluth, Minn.		Wisconsin.						Chicago, Ill.		Fort Wayne, Ind.		Michigan.															
			Florence.		Green Bay.		Milwaukee.						Alpena.		Battle Creek.		Cadillac.		Detroit.		Escanaba.		Ewen.		Houghton.		Marquette.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	43	39	54	40	57	46	62	51	65	52	65	52	52	46	64	50	64	50	67	49	55	43	44	40	46	40	49	43
2	52	33	50	35	56	41	58	43	60	46	61	47	50	42	55	45	54	30	55	42	49	40	53	31	42	39	48	40
3	59	40	54	38	62	41	63	43	65	44	63	38	47	37	55	40	55	36	53	42	58	38	65	39	51	36	55	39
4	48	35	48	30	52	37	53	42	56	47	60	42	44	28	54	40	50	36	50	40	47	32	53	27	45	34	44	34
5	53	34	52	24	56	42	52	47	58	49	61	35	54	26	54	39	52	28	50	39	50	29	59	22	53	32	59	33
6	48	39	52	25	56	42	52	47	58	50	64	41	48	28	57	38	56	30	55	44	50	33	55	22	50	33	55	33
7	54	31	57	34	64	46	63	48	65	51	62	38	53	42	62	40	62	37	57	44	53	45	57	24	63	41	62	41
8	38	24	54	27	49	35	58	41	59	47	61	49	53	36	60	39	56	35	57	37	46	33	57	38	41	32	41	32
9	47	30	43	20	47	32	48	42	51	41	57	33	42	37	49	29	50	25	46	37	44	29	46	34	47	28	46	32
10	63	44	56	34	64	42	63	46	66	50	65	46	52	37	58	35	50	32	59	45	51	44	54	31	65	40	61	40
11	51	34	50	45	64	41	66	45	71	58	73	57	67	52	69	55	60	50	66	53	55	42	55	23	65	41	62	40
12	37	31	52	34	42	34	46	36	58	46	65	52	61	37	64	45	60	26	59	44	44	38	40	31	41	38	42	38
13	36	31	45	30	60	39	60	45	70	51	74	48	49	40	66	40	60	37	67	44	53	37	38	32	39	33	45	38
14	43	20	59	23	65	35	66	34	65	40	71	54	61	44	67	54	60	32	70	49	55	35	60	32	63	29	60	32
15	29	16	50	20	35	25	39	28	44	31	63	38	52	30	62	36	60	28	61	36	37	27	34	23	30	26	32	27
16	30	20	30	22	38	30	54	33	61	33	64	40	42	30	58	34	42	26	61	36	33	27	30	22	31	26	33	28
17	25	14	29	20	32	26	33	27	35	29	51	31	38	25	45	30	42	25	36	29	30	21	25	16	28	24	28	24
18	20	11	26	17	32	15	35	21	36	28	40	29	32	24	33	28	28	24	35	29	28	16	24	11	27	22	26	19
19	32	14	35	20	43	32	50	33	53	36	53	33	42	28	48	30	39	26	47	30	42	24	36	19	38	20	37	21
20	41	21	47	28	53	38	56	46	60	46	61	43	48	41	56	40	48	38	55	40	47	34	59	29	42	28	47	33
21	22	11	42	20	45	29	56	34	57	40	59	45	49	28	55	35	50	.....	57	35	36	25	53	20	28	21	33	24
22	24	19	24	20	31	17	36	21	40	30	62	34	32	22	37	27	.....	20	42	30	28	24	26	18	25	20	28	22
23	27	21	25	11	32	17	37	19	39	28	34	23	29	10	28	14	29	4	34	25	32	22	28	2	29	20	30	22
24	36	26	33	19	37	32	41	34	45	31	43	21	35	29	38	19	29	16	36	24	37	32	35	22	37	28	36	30
25	35	33	40	30	40	33	48	40	52	39	46	27	38	28	45	26	44	25	40	24	43	37	43	33	39	35	41	35
26	48	34	40	32	50	32	53	37	60	42	58	25	41	33	54	28	48	24	49	32	46	38	47	35	48	36	49	35
27	51	30	54	38	59	50	65	48	63	48	66	29	49	38	63	35	55	39	57	39	50	43	55	39	61	41	59	46
28	35	20	55	30	57	33	58	38	58	42	65	45	53	31	58	41	52	35	61	38	53	28	50	26	41	26	49	27
29	41	24	34	18	42	31	41	34	41	37	55	21	41	27	45	28	46	24	43	33	38	24	33	22	45	24	38	26
30	40	32	37	22	41	31	48	32	50	36	51	24	47	31	45	23	46	28	46	33	41	27	42	25	45	29	43	29
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	40.3	27.0	44.2	26.9	48.7	34.1	52.0	37.8	55.4	41.6	59.1	38.0	46.7	32.9	53.5	35.4	49.9[a]	30.6[a]	52.4	37.4	44.4	32.2	45.2	26.3	43.5	30.7	44.6	32.1

Date.	Michigan.						Ohio.								Erie, Pa.		New York.								Vermont.			
	Muskegon.		Saginaw, W. S.		Sault Ste. Marie		Cleveland.		Lima.		Sandusky.		Toledo.				Buffalo.		Canton.		Rochester.		Syracuse.		Burlington.		Northfield.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	64	58	65	50	55	46	68	51	66	53	69	52	63	51	72	53	70	58	69	32	75	53	75	55	64	32	56	24
2	60	50	57	41	51	42	57	46	57	48	55	45	58	45	57	47	65	50	62	49	64	49	64	51	61	50	54	34
3	51	40	58	36	44	39	52	42	60	40	54	41	57	42	50	44	51	45	49	40	51	43	51	42	56	43	54	36
4	55	45	54	38	43	35	47	41	58	40	50	40	53	42	50	40	49	38	43	36	45	37	45	35	43	37	41	32
5	47	40	53	30	52	31	49	40	60	40	49	43	46	41	46	37	46	35	42	34	45	36	40	35	41	35	37	33
6	60	39	56	33	47	28	56	43	64	40	54	42	54	41	50	36	52	37	42	24	48	34	46	32	41	30	39	24
7	60	41	62	38	50	37	64	42	63	47	66	45	59	43	63	41	61	34	52	30	58	32	52	27	44	21	44	17
8	50	38	57	38	46	30	59	43	62	48	59	44	60	37	58	43	54	41	48	31	56	40	54	39	44	34	42	32
9	49	30	50	32	41	29	49	41	50	41	48	45	48	36	47	38	46	37	37	26	48	38	47	31	39	27	42	21
10	60	42	58	34	53	37	64	46	63	46	64	47	62	46	57	45	55	41	47	31	53	39	50	38	44	28	46	18
11	64	55	72	52	61	44	70	55	67	55	69	57	68	56	72	54	67	53	64	44	73	50	69	48	56	42	61	30
12	58	40	65	43	44	38	62	49	63	52	62	48	61	44	64	50	61	46	64	50	67	46	69	50	65	49	70	36
13	67	41	64	42	50	38	72	50	72	48	72	49	70	45	65	48	63	43	50	36	51	40	57	47	54	42	57	37
14	60	54	70	46	60	47	72	54	72	48	73	55	72	54	72	55	68	58	61	33	70	46	61	51	54	38	53	34
15	54	34	63	33	47	26	66	40	50	44	63	46	62	41	66	41	61	36	61	38	62	38	66	40	60	41	63	38
16	52	33	50	31	29	24	64	39	66	42	65	38	65	39	65	38	60	34	38	26	55	35	52	35	41	31	40	31
17	42	32	48	30	28	22	41	30	60	30	38	33	39	34	56	32	57	27	54	27	56	28	57	30	51	36	51	35
18	35	30	34	27	30	20	34	32	38	29	36	32	38	31	35	29	32	27	27	22	31	24	30	24	36	24	35	22
19	47	33	47	29	37	27	48	32	50	32	50	35	51	35	46	30	47	28	36	19	41	28	40	29	34	18	32	11
20	50	40	53	40	44	35	59	44	59	40	59	45	59	43	58	45	55	45	51	36	58	41	59	40	51	34	56	31
21	50	32	56	32	41	19	59	42	60	48	60	42	59	38	58	42	56	40	57	35	59	42	60	41	56	38	59	39
22	38	30	36	25	22	10	68	33	65	43	66	34	60	29	68	35	60	33	35	31	62	38	61	39	52	33	43	33
23	30	22	30	13	22	6	34	30	55	25	35	33	31	26	35	29	33	24	33	18	43	27	64	21	55	23	57	25
24	34	18	36	17	31	21	37	30	41	21	40	32	38	28	35	24	29	24	20	13	31	26	28	18	26	14	28	20
25	50	30	41	26	39	30	40	32	47	24	38	34	43	27	40	28	36	22	26	19	32	24	33	18	31	20	32	23
26	51	33	50	25	42	36	47	32	53	25	54	31	51	35	43	38	39	30	34	12	40	31	37	30	35	26	30	24
27	56	38	63	35	49	40	61	36	62	35	63	37	62	37	60	35	57	32	45	12	55	32	44	25	36	18	35	16
28	47	43	55	37	48	29	66	41	65	45	66	42	64	40	63	39	57	38	53	35	65	40	61	40	46	30	45	19
29	47	26	45	28	36	26	41	37	57	31	43	37	41	32	40	33	40	32	35	22	40	33	40	29	31	19	38	22
30	45	21	48	25	45	30	46	32	46	27	44	31	47	32	40	31	40	32	30	16	39	31	38	25	24	11	28	7
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	51.1	36.9	53.5	33.5	42.9	30.7	55.1	40.2	58.4	39.6	55.5	41.2	54.7	39.0	54.4	39.3	52.2	37.3	45.5	28.9	52.4	36.7	51.7	35.5	45.7	30.8	45.6	26.8

Climatological Data for November, 1909.
DISTRICT No. 5, UPPER MISSISSIPPI VALLEY.

GEORGE M. CHAPPEL, District Editor.

TEMPERATURE.

The month of November, 1909, will be noted for its excess of temperature, precipitation, and cloudiness, the monthly mean temperature being considerably above the normal at every station in the district, except at Condo, Donnybrook, Minot, and Wahpeton, N. Dak., where there were slight deficiencies. The first decade of the month was unseasonably warm, and the temperature was generally above the normal during the second and third decades, except on 2 or 3 days in each decade in the southern and 4 or 5 days in the northern sections. A cold wave of considerable severity passed over the district from the northwest to the southeast between the 12th and 18th, which caused temperatures of zero, or below, on one or more days in the Dakotas and at some stations in Minnesota, Wisconsin, and northern Iowa. Another cold spell occurred between the 20th and 23d, but the temperatures were not much below the normal except over the northern sections.

In North Dakota the weather was generally pleasant, although there was less than the usual amount of sunshine. The average temperature was slightly more than 3° above the normal. During the first decade the day temperatures were exceptionally high, and the last 3 days of the month were also warm. The second decade was the coldest, and during that period the minimum temperatures for the month were usually recorded.

In Minnesota the mean temperatures ranged from a little above 38°, in the middle Minnesota Valley, and in Goodhue, Wabasha, Winona, and Houston counties, to somewhat less than 28° in the northwestern counties. The excess in temperature was general, and ranged from 3° to 8°, with the greatest departure in the upper Mississippi Valley and over the Iron Mountain Range. A warm period extended from the 3d to the 11th, with the 10th as generally the warmest day of the month. Unusually cold periods extended from the 15th to the 18th, and from the 22d to the 23d. The 18th was generally the coldest day. The average temperature was the same as in November, 1908. It was 5.8° lower than in the warmest November, that of 1899, when the average was 39.6°, and 15.8° warmer than in the coldest November, that of 1896, when the average was 18.0°.

In Wisconsin the temperature was decidedly above the normal at all stations, the departure being as great as +12° at some stations. The highest occurred at most stations on the 11th, 13th, or 14th, although it was recorded at a few places earlier in the month. The lowest was from the 18th to the 23d. This period was the only time that the temperature was near zero throughout the section. The mean temperatures for the month ranged from 35° in the interior of the northern section to 45° in the extreme southern portion.

In Iowa the average temperature for that part of the State in District No. 5 was 42.8°, which is 7.4° above the normal, and the highest average for November during the past 19 years, except in 1899, when the average for the State was 43.9°. The first decade was the warmest part of the month, and the highest temperature occurred generally between the 4th and 6th, when the maximum temperatures ranged from 66° to 77° over the northern counties, from 68° to 81° over the central, and from 74° to 84° over the southern counties. The only cold periods of the month were on the 17-18th and the 22-23d, the lowest temperature occurring generally on the 18th, when the minimum was near zero over the northern counties.

In Missouri the mean temperatures were continuously above the normal during the entire month, save 3 or 4 days during the second decade and 1 or 2 during the third decade, when they were normal or slightly below. The mean temperatures ranged from 6° to 11° above the normal. The prevailing day temperatures were remarkably high for the season of the year, and during the first 10 or 15 days they were more often above 70° than below that value. On 1 or 2 days during the first week they reached or exceeded 80° at nearly all stations. There was only 1 cold wave during the month, which dominated the conditions from the 15th to the 18th, causing falls in temperature of from 36° to 50°, and resulting in a minimum of 20° or lower. One of the noticeable features of the month was the unusually small number of days with the temperature down to or below 32°, the average number being about 5.

In Illinois the monthly mean temperature was 49.6°, or 9.0° above the normal, and it was the highest monthly mean for November since the inception of the Signal Service. There was a complete inversion or cessation of the seasonal advance, the November mean being nearly as great as that for October. The temperature was below the normal on only 4 days during the month.

In Indiana the mean temperature was from 8° to 10° above the normal and the month was the warmest on record for the State, the temperature being continuously above the normal, except during two brief cool periods prevailing from the 17th to the 19th, and 22d to the 24th, respectively.

The monthly mean temperature for the district, as shown by the records of 296 stations, was 40.2°, which is 6.9° above the normal. The highest monthly mean was 57.6°, at Cobden, Union County, Ill.; and the lowest monthly mean, 24.2°, at Bottineau and Westhope, Bottineau County, N. Dak. The highest temperature reported was 85°, at DuQuoin, Perry County, Ill., on the 3d and other dates; the lowest temperature reported was 23° below zero, at McKinney, Ward County, N. Dak., on the 21st.

PRECIPITATION.

The precipitation was frequent, general, and heavy in all parts of the district, except over North Dakota and southern Minnesota, where there was a deficiency. The monthly amounts at many stations exceeded all former records for November, and the snowfall was also excessive over northern Iowa, Minnesota, and Wisconsin.

In North Dakota there was practically no precipitation during the first 9 days of the month, and it was scattered between the 10th and the close of the month, the heaviest occurring from the 12th to the 15th. The average amount was, however, considerably below the normal and less than one-half that of November, 1908. The heavy snow caused some delay in traffic.

In Minnesota the precipitation ranged from nearly 8 inches in Mower County to a little more than one-fourth of an inch in Kittson County. In the central counties it was about 1 to 3 inches. It was from 1 to 6 inches above the normal in the southern counties, and over 4 inches above the normal in southern Lake County. About the headwaters of the Mississippi there was a slight deficiency, and in Kittson County it was nearly 0.50 inch below the normal. The bulk of the precipitation fell between the 13th and the 16th. There was an unusually heavy fall of snow in the western counties on the 14th, and over the greater portion of the State on the 16th. The monthly snowfall was unusually heavy, ranging from about 3 inches in the central counties to 30 inches in Martin County in the south, and to 20 inches in northern Beltrami County in the north.

In Wisconsin the precipitation was abundant and well distributed, both throughout the month and over the section. Most of it fell on the 1st, from the 11th to the 14th, and the 16th, and in the southern portion on the 22d. Part of the precipitation between the 11th and 14th was in the form of snow over the northern half of the section, which remained on the ground until about the 27th, when practically all of it had disappeared. In the middle and southern sections there was a moderately heavy snowfall on the 22d, and this remained on the ground, except in the extreme southern portion, until the 26th.

In Iowa the precipitation was above the normal at all stations, and it was well distributed throughout the month, there being only 4 days on which rain or snow did not fall in some part of the section, viz: 4th, 5th, 18th, 19th. The heaviest precipitation occurred between the 11th and 16th, but the amounts were comparatively heavy on the 1st, 7th, 22d, and 23d, and at a few stations on the 28th; and the monthly amounts at many stations exceeded all former records for November. The amounts of snowfall over the northern counties also exceeded all November records. Heavy snow fell on the 15th, 16th, 22d, and 23d, and the monthly amounts ranged from 8 to 29.5 inches in the northern part of the State.

In Missouri over the Mississippi watershed, the monthly rainfall ranged from 2 to over 5 inches, which is from 50 to 70 per cent greater than the normal.

In Illinois the average amount of precipitation for the month was 4.26 inches, which is 1.78 inches above the normal. This high November average has been exceeded only 4 times in the past 32 years, viz: In 1879, 1881, 1883, and 1891. The driest November on record was in 1904 when the average rainfall was less than one-half inch.

Rain fell in Indiana on frequent dates throughout the month, the principal storm occurring on the 21st and 22d, when a heavy rain, accompanied by thunderstorms and high winds, occurred. No damage, however, is known to have been done. Snow flurries occurred on several dates, but a measurable amount was reported from only one station.

The average precipitation for the district, as shown by the records of 312 stations, was 3.73 inches, which is 2.36 inches above the normal. The greatest amount, 11.48 inches, occurred at Humboldt, Humboldt County, Iowa, and the least, a trace, at Amenia, Cass County, N. Dak. The greatest amount in 24 hours, 3.68 inches, occurred at Guthrie Center, Guthrie County, Iowa, on the 13th. The average depth of unmelted snowfall was 5.9 inches, and the greatest depth, 30.0 inches, at Fairmont, Martin County, Minn. Measurable precipitation occurred on an average of 8 days. The average number of clear days was 9; partly cloudy, 8; and cloudy, 13. The duration of sunshine was below the normal. South winds prevailed.

RIVER STAGES.

The frequent and heavy rains caused high water in all rivers and creeks, and in central Iowa many of the streams were out of their banks and overflowed the bottom lands, which is an unprecedented condition for November. The stage of the Des Moines River at Des Moines, Iowa, increased from 2.3 feet on the 3d to 11.9 feet on the 18th, then receded to 7.5 feet on the 26th, increasing to 10.5 feet on the 30th. There was a rise of 5.3 feet in the Minnesota River at Mankato, Minn., during the month, and at St. Paul the Mississippi River rose 2.2 feet during the month. The upper Illinois River was above the flood stage from the 24th to the 29th, inclusive. Bottom lands were flooded, delaying the harvesting of corn, but the estimated losses were inconsiderable. The average stage of the Mississippi River at St. Louis was 11.8 feet, which has only been exceeded once in November in 20 years. A rise in the Mississippi River cut out several hundred feet of the river bank at Birdpoint, Mo.

MISCELLANEOUS.

Severe thunderstorms occurred at several places in central and southern Wisconsin on the 11th. At Lake Mills, in Jefferson County, Wis., a severe local storm passed just south of the city at 4 p. m., injuring about 30 buildings and destroying 5. At Mount Horeb, in Dane County, at about the same time, many small buildings were blown down and much other damage was done. There was an excessive amount of cloudiness over nearly all of the district, and the warm, moist weather was very injurious to corn and prevented the usual amount of farm work being done. In Iowa about 35 per cent of the corn crop was still in the fields at the close of the month, and a large percentage of it was in very poor condition. The fields were too soft to permit the hauling of heavy loads, and as a result the corn harvest has been delayed materially. The warm and moist weather has caused the corn in cribs to mold, and the general condition of the crop is worse than was ever before known at this season of the year. The excess of moisture and heat have, however, been beneficial to grass, alfalfa, and the winter grains, and reports indicate that they are in excellent condition.

Contrary to the usual conditions for November, the prevailing direction of the wind was generally southerly. A severe local storm occurred in and north of Marshalltown, Marshall County, Iowa, on the 11th, which caused considerable damage. A number of houses and barns were injured and many outbuildings, hay stacks, and telephone and telegraph poles were blown down.

A brilliant meteor was observed in the western part of Dubuque County, Iowa, on the 28th at about 4:30 p. m., which was accompanied by a noise resembling light thunder and by a vibration that caused dishes, windows, and doors to rattle in the vicinity of Dyersville, Iowa. It moved from south to north and probably fell northwest of Dyersville.

DRAINAGE WORK IN IOWA.

The work of draining farm lands in this State has been progressing for the past 25 or 30 years; but, until the last few years, only those lands that had a natural outlet were tiled or ditched. Since the laws of the State provided for the formation of drainage districts and the construction of artificial outlets in the form of ditches, the work has become more extensive and carried on more systematically. Under the laws of the State and when properly petitioned by one or more land owners, the board of supervisors of each county has the power and authority to establish a drainage district and to locate and cause to be constructed any levee, ditch, drain, or water course, or to straighten, widen, deepen, or change any natural water course in their respective counties, whenever the same will be of public utility or conducive to the public health, convenience, or welfare. The law further provides that the drainage of the surface waters from agricultural lands shall be considered to be a public benefit and conducive to the public health, convenience, utility, and welfare. Farmers in those sections of the State where the land is flat and the natural drainage is not good are alive to the value of and the benefits to be derived from proper drainage of their lands, and much work of that character has been done, and much more will be done in the years to come. The following will give an idea of the amount of work being done in the State:

Mr. Charles H. Reynolds, County Surveyor of Webster County, reports that over 100 miles of open ditch and from 40 to 50 miles of the county drain have been constructed. The county ditches are numbered from 1 up to 113, and there are 2 open ditches having an aggregate length of over 65 miles and drain more than 3 townships. The amount of private tile that opens in the county ditches must be considerable. Mr. W. E. McClure, County Surveyor of Calhoun County, reports that drainage work has been going on in that county since 1903,

but, during the last 2 years, has been carried on more extensively. Approximately one-third of the county, or 122,880 acres, which was too low and level to have a natural outlet, has been drained. They have 75 miles of open ditches constructed, 75 miles under construction, and 50 miles more designed to be put in soon. They also have 300 miles of large tile used as main drains. The cost of the main outlets averages from $1.00 to $50.00 per acre, according to location from natural outlet, and the cost of tiling after the outlet is in ranges from $1.00 to about $10.00 per acre. In addition to the work done under the supervision of the county, farm tiling has been carried on very extensively.

THE DES MOINES RIVER TO BE SURVEYED.

The question of improving the rivers in Iowa with the view of making them navigable and increasing the methods of transportation has been agitated for several years; and, in order that it may be determined as to whether or not the scheme is practicable, Representative Nathan E. Kendall, of the 6th Congressional District of Iowa, has introduced in the House a bill directing the Secretary of War to cause a survey to be made of the Des Moines River from its mouth to the city of Des Moines, and appropriating $100,000 for that purpose.

TABLE 1.—*Climatological data for November, 1909. District No. 5, Upper Mississippi Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Dakota.																				
Amenia	Cass	954	11	32.1	+ 6.7	76	4	− 1	29	61	T.	− 0.68	T.	.....	0	12	4	14	se.	C. E. Wood.
Bottineau	Bottineau	1,638	13	24.2	+ 1.8	60	4	−15	21	41	0.47	− 0.14	0.36	.....	2	6	10	14	se.	J. A. Kamp.
Cando	Towner	1,488	7	24.6[b]	− 2.9	67[b]	5	−14[b]	21	46[b]	0.34	− 0.21	0.34	2.5	1	.....	.....	.....	.....	E. T. Judd.
Crosby	Williams	.....	2	26.1	.....	62	3	−10	21	35	0.58	.....	0.16	5.0	6	11	10	9	nw.	B. Lancaster.
Devils Lake	Ramsey	1,482	3	27.0	+ 4.4	62	6	−11	21	30	0.26	− 0.45	0.10	3.4	7	11	7	12	nw.	U. S. Weather Bureau.
Donnybrook	Ward	1,760	9	26.6	− 2.8	62	3	−13	21	36	0.20	− 0.54	0.20	2.0	1	7	8	15	nw.	F. S. Gieselman.
Dunseith	Rolette	.....	11	25.4	+ 0.7	60	3†	−10	15	41	0.40	+ 0.14	0.30	4.0	2	19	8	3	w.	L. H. Trowbridge.
Edmore	Ramsey	1,524	3	29.0	.....	72	4	−15	21	40	T.	.....	T.	T.	0	15	13	2	s.	H. R. Aslakson.
Forman	Sargent	1,249	14	34.7	+ 8.5	82	7	− 8	15	52	0.50	− 0.02	0.40	5.0	2	10	10	10	nw.	A. Maltby.
Grafton	Walsh	827	11	27.6	+ 6.0	62	3	− 8	21†	40	0.45	− 0.34	0.20	4.5	3	4	18	8	n.	H. Lamoure.
Granville	McHenry	1,504	2	26.2	.....	62	2†	−14	15	42	0.06	.....	0.04	1.0	2	18	5	7	nw.	W. A. Christiansen.
Hamilton	Pembina	824	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	D. Wallace.
Hannah	Cavalier	1,568	3	.....	.....	.....	.....	.....	.....	.....	0.72	.....	0.60	6.0	3	.....	.....	.....	.....	J. Moffatt.
Hansboro	Towner	.....	1	24.6	.....	62	3†	−17	21	44	0.32	.....	0.20	4.2	4	15	7	8	nw.	Geo. Dale.
Hillsboro	Traill	901	3	27.7	.....	68	10	− 8	21	34	0.95	.....	0.80	9.5	6	10	13	7	ne.	M. H. Norman.
Lakota	Nelson	1,519	2	26.9[b]	.....	61[b]	3†	−10[b]	21	32[b]	0.50	.....	0.20	4.2	4	.....	.....	.....	nw.	C. R. Pettes.
Langdon	Cavalier	1,615	13	24.4	.....	61	2	−11	21	44	0.43	.....	0.21	4.3	3	5	6	19	w.	J. Woolner.
Larimore	Grand Forks	1,134	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. Naylor.
Lisbon	Ransom	1,091	4	28.6	.....	70	11	− 7	15	39	0.60	.....	0.30	6.0	3	11	3	16	nw.	H. K. Adams.
McKinney	Ward	1,640	14	25.3	+ 2.4	68	6	−23	21	47	0.50	− 0.14	0.40	5.0	2	8	13	9	nw.	M. P. Swenson.
Manfred	Wells	1,605	7	28.9	.....	63	3	−10	15	43	0.20	.....	0.10	2.0	2	9	12	9	sw.	P. B. Anderson.
Mayville	Traill	975	13	36.7	+10.0	64	3	9	21	24	0.50	− 0.23	0.40	5.0	2	18	0	12	n.	M. N. Pope.
Milnor	Sargent	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	O. B. Jorgenson.
Minot	Ward	1,557	10	28.0	− 3.4	65	3	−10	15	39	0.22	− 0.51	0.06	2.2	6	14	6	10	w.	J. J. Bates.
Minto	Walsh	820	15	28.2[c]	+ 3.9	66[c]	5	− 9[c]	28	33[c]	0.80	+ 0.19	0.40	.....	4	17	5	8	s.	S. S. Marsh.
Oriska	Barnes	1,270	3	30.1	.....	68	10	1	28	42	0.60	.....	0.60	6.0	2	2	24	4	nw.	W. E. Williams.
Park River	Walsh	998	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. Heyward.
Pembina	Pembina	789	10	26.7	+ 0.9	55	9	0	15†	42	0.02	− 0.67	0.01	0.2	2	11	8	11	w.	F. C. Warner.
Portal	Ward	1,954	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. S. Davis.
Power	Richland	1,020	16	27.8	+ 1.9	70	10	−10	16	40	1.85	+ 1.27	1.60	18.5	4	9	6	15	nw.	J. A. Power.
Pratt	McHenry	.....	4	24.6	.....	68	4	−15	17†	44	0.24	.....	0.20	2.4	3	16	4	10	nw.	C. H. Butts.
Towner	....do	1,475	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. Bagley.
University	Grand Forks	830	17	26.4	+ 0.8	63	3	− 8	15	37	0.75	− 0.01	0.60	7.5	4	12	3	15	se.	G. W. Stewart.
Wahpeton	Richland	962	17	27.2	− 1.0	64	3†	− 9	14†	35	.....	.....	.....	.....	.....	12	6	12	nw.	E. G. Burch.
Walhalla	Pembina	966	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. H. Lee.
Westhope	Bottineau	.....	2	24.2	.....	62	1†	−14	21	42	0.46	.....	0.25	4.6	3	13	8	9	nw.	J. D. Currie.
Willow City	....do	1,471	15	25.2	+ 4.5	62	4†	− 6	15†	46	0.30	− 0.16	0.10	3.0	4	3	13	14	nw.	M. A. Ostby.
Minnesota.																				
Albert Lea	Freeborn	1,229	19	36.6	+ 5.1	68	4	3	23	33	6.40	+ 5.26	2.00	19.0	5	5	14	11	nw.	Edward Carey.
Alexandria‡‡	Douglas	1,391	15	33.4	+ 5.4	73	10	5	15†	38	1.23	+ 0.51	0.80	3.2	5	5	8	17	nw.	P. O. Unumb.
Angus	Polk	870	7	27.0	.....	67	10	−12	15	39	1.20	.....	0.50	6.0	8	12	5	13	s.	F. A. Wilson.
Bagley	Clearwater	.....	3	30.0	.....	70	9	−10	22	38	1.39	.....	0.60	15.0	6	7	13	10	nw.	Edward T. Teitsworth.
Baudette	Beltrami	.....	.....	28.7	.....	60	10	− 4	22	31	1.65	.....	0.92	19.5	5	13	0	17	ne.	Franz W. Schmidt.
Beardsley	Bigstone	1,090	16	33.1	+ 4.6	72	10	0	21	37	1.27	+ 0.56	0.92	12.0	3	7	8	15	nw.	Roy A. Smith.
Beaulieu	Mahnomen	1,200	7	30.8[b]	.....	69[b]	10	− 1[b]	28	33[b]	0.82[b]	.....	0.60	8.0[b]	3[b]	9[b]	3[b]	16[b]	s.	Dr. L. A. Parkinson.
Bird Island	Renville	1,039	19	35.8	+ 5.6	71	4†	3	18	38	1.82	+ 0.98	0.90	5.1	5	9	4	17	nw.	Dr. F. L. Puffer.
Caledonia‡‡	Houston	1,179	16	38.4	+ 5.5	69	4	9	18†	34	4.78	+ 3.19	1.90	11.6	7	9	10	11	ne.	W. D. Belden.
Campbell‡‡	Wilkin	984	.....	30.4	.....	68	4	− 2	23	41	0.50	.....	0.30	5.0	3	9	3	18	nw.	J. T. Neisess.
Cass Lake‡‡	Cass	1,300	3	.....	.....	.....	.....	.....	.....	.....	1.65	.....	1.10	13.0	3	.....	.....	.....	.....	C. W. Burns.
Collegeville	Stearns	1,282	16	34.6	+ 3.6	67	10	3	21	33	1.45	+ 0.61	0.91	4.2	4	10	2	18	s.	Fridolin Tennbreull.
Crookston‡‡	Polk	863	19	28.4	+ 3.2	66	10	− 3	21	28	1.20	+ 0.52	1.00	13.0	5	10	4	16	s.	A. G. Anderson.
Detroit‡‡	Becker	1,364	13	28.0	+ 1.3	69	10	−10	28	37	1.05	+ 0.35	0.65	12.0	5	12	8	10	sw.	G. W. Peoples.
Fairmont, (near)	Martin	753	22	35.6	+ 4.5	69	6	6	18	29	5.61	+ 4.44	1.48	30.0	7	9	8	13	s.	W. F. Wherland.
Faribault	Rice	1,003	12	36.9	+ 3.3	69	4	1	18	36	4.16	+ 3.31	1.99	6.1	6	10	4	16	s.	A. R. T. Wylie.
Farmington	Dakota	902	21	37.0	+ 6.4	65	10	3	18	29	3.53	+ 2.28	1.32	9.0	5	7	3	20	nw.	D. F. Akin.
Fergus Falls	Ottertail	1,210	17	32.4	+ 4.4	70	10	− 2	21	26	0.95	+ 0.14	0.54	9.0	8	5	11	14	se.	Chas. E. Kissenger.
Fort Ripley	Morrison	1,135	3	34.8	.....	68	10	− 1	18	36	1.51	.....	1.12	2.8	4	13	2	15	s.	J. J. Tucker.
Fosston	Polk	1,288	.....	28.8	.....	78	10	−14	15	43	1.15	.....	0.70	10.9	3	14	5	11	se.	O. N. Hem.
Glencoe	McLeod	1,006	13	38.6[a]	+ 6.9	68	6†	8[a]	22	35[a]	1.85	+ 0.81	0.85	7.0	4	11	6	13	ne.	C. G. Selvig.
Grand Meadow	Mower	1,338	22	37.2	+ 6.8	69	6	3	18	32	7.82	+ 6.71	2.87	12.0	11	4	8	18	s.	C. F. Greening.
Hallock	Kitson	815	10	26.6	+ 0.1	63	6†	−10	28	38	0.27	− 0.43	0.10	1.5	4	16	2	12	s.	D. A. Robertson.
Halstad‡‡	Norman	870	3	26.4	.....	71	10	−10	16†	42	1.35	.....	0.70	15.0	2	8	6	16	nw.	A. G. Holstrom.
Hinckley	Pine	1,050	4	35.4	.....	62	3†	0	18	31	3.27	.....	1.50	9.0	6	5	6	19	n.	W. R. Newman.
International Falls	Koochiching	.....	1	29.0	.....	59	10†	− 5	22	32	1.70	.....	0.60	12.0	5	8	13	9	ne.	Rees Roe.
Kelliher	Beltrami	.....	3	29.2	.....	62	11	− 5	22	31	1.73	.....	1.20	16.5	8	6	13	11	nw.	A. Gilmour.
Lake Crystal	Blue Earth	.....	2	37.2	.....	70	4	2	18	37	3.15	.....	1.18	10.0	6	13	5	12	s.	W. P. Cobb.
Leech Lake Dam	Cass	1,300	21	30.8	+ 5.2	63	10	3	22	37	1.02	− 0.05	0.55	10.4	11	5	6	19	w.	U. S. Engineer Corps.
Litchfield	Meeker	1,129	1	35.1[a]	.....	65[f]	3†	13[a]	17†	29[a]	2.60[f]	.....	1.50	9.0[f]	2[f]	6[f]	4[f]	14[f]	nw.	N. Y. Taylor.
Little Falls	Morrison	1,117	3	33.4	.....	68	10	5	21	29	2.23	.....	1.53	6.0	4	6	14	10	se.	Maurice Coleman.
Long Prairie	Todd	1,299	17	34.0	+ 6.4	69	10	1	21	40	2.01	+ 1.09	1.47	3.0	5	9	3	18	nw.	A. W. Sheets.
Lynd (2)	Lyon	.....	17	34.4[b]	+ 3.2	78[b]	4	4[b]	18†	46[b]	2.00[b]	+ 1.09	1.70[b]	9.0[b]	3[b]	8[b]	7[b]	13[b]	nw.	Jacob Rouse.
Mankato‡‡	Blue Earth	747	10	.....	.....	.....	.....	.....	.....	.....	2.70	+ 1.50	1.10	11.0	7	9	6	15	nw.	Sadie H. Blake.
Milaca	Millelacs	1,072	12	34.2	+ 2.7	64	10	2	18	32	2.53	+ 1.35	1.11	11.0	5	8	6	16	s.	C. H. Foss.
Milan	Chippewa	995	15	32.5	+ 3.2	74	6	0	21	40	0.70	− 0.26	0.30	5.5	3	5	13	12	nw.	O. K. Opjorden.
Minneapolis (1)	Hennepin	918	18	37.6	+ 4.8	66	10	9	18	37	2.74	+ 1.56	1.08	11.0	8	7	6	17	s.	U. S. Weather Bureau.
Minneapolis (2)**‡	Hennepin	850	16	36.1	+ 5.5	63	3	7	18	.....	2.84	+ 1.57	1.34	9.0	7	4	12	14	s.	J. H. Ashenbeck.
Montevideo‡‡	Chippewa	900	19	34.8	+ 4.2	82	3	3	21	42	1.76	+ 0.94	1.18	6.1	4	6	12	12	nw.	Lloyd G. Moyer.
Moorhead	Clay	935	28	28.3	+ 3.9	70	10	− 2	22	34	1.44	+ 0.46	1.26	15.6	4	8	7	15	nw.	U. S. Weather Bureau.
Mora	Kanabec	.....	4	35.1[b]	.....	64[b]	10	0[b]	18	32[b]	1.76	.....	1.03	6.0	8	12	2	16	s.	Hans Peterson.
Morris	Stevens	1,170	24	32.5	+ 4.3	72	10	− 3	21	34	1.50	+ 0.85	0.80	8.0	3	15	2	13	nw.	D. T. Wheaton.
New London	Kandiyohi	1,215	15	35.1	+ 5.2	72	4	6	18	40	1.70	+ 0.85	0.90	6.0	3	7	11	12	nw.	Harold Swenson.
New Richland	Waseca	1,180	15	36.8	+ 4.4	70	4	6	18†	34	3.67	.....	1.20	9.0	6	10	10	10	nw.	N. O. Tyrholm.
New Ulm‡‡	Brown	791	29	34.9	+ 3.0	74	4	7	18	40	3.15	+ 2.07	1.15	11.9	6	8	3	19	s.	A. J. Eckstein.
Osakis	Douglas	1,343	2	33.8	.....	69	10	3	21	38	1.35	.....	1.13	3.2	4	7	4	19	s.	John B. Johnson.
Park Rapids‡‡	Hubbard	1,426	19	29.2	+ 3.5	66	10	− 4	21	35	1.16	+ 0.14	0.70	10.2	10	11	1	18	nw.	Dr. P. A. Walling.
Pine River Dam	Crow Wing	1,251	22	32.2	+ 5.4	65	10	7	19	34	1.39	+ 0.36	0.60	4.0	6	9	7	14	ne.	Neil McKay.
Pokegama Falls	Itasca	1,290	22	30.8	+ 6.3	61	11	2	22	35	1.20	− 0.06	0.71	9.3	6	6	7	17	nw.	U. S. Engineer Corps
Red Lake	Beltrami	.....	1	30.0	.....	67	10	− 6	22	30	0.97	.....	0.36	11.7	6	11	11	8	s.	A. C. Goddard.
Red Wing	Goodhue	708	20	38.8	+ 5.5	65	10†	3	18	34	5.90	+ 4.98	2.35	10.0	5	5	15	10	nw.	F. A. Whittier.
Red Wing (river)‡‡	....do	680	10	.....	.....	.....	.....	.....	.....	.....	5.50	+ 4.58	1.40	8.0	9	14	2	14	nw.	Louis Bach.
Redwood Falls	Redwood	1,033	2	36.8	.....	78	4	4	18	42	3.46	.....	1.53	10.0	5	12	9	9	nw.	N. B. Andersen.
Reeds Landing‡‡	Wabasha	681	11	.....	.....	.....	.....	.....	.....	.....	5.08	+ 3.65	1.50	7.0	9	8	3	19	se.	John Deschneau.
Rochester‡‡	Olmstead	991	5	37.6	.....	67	4	2	18†	42	5.91	.....	1.35	13.0	9	8	4	18	s.	S. R. Case.
Roseau	Roseau	1,040	2	27.4	.....	62	6	− 4	21†	35	2.28	.....	.....	14.0	3	14	13	3	s.	A. Waag.
St. Charles‡‡	Winona	850	18	37.3	+ 5.9	63	6†	2	18†	32	4.22	+ 3.09	0.78	9.5	11	8	7	15	se.	S. W. Gleason.
St. Cloud	Sherburne	1,020	31	35.3	+ 5.7	68	10	5	18	30	2.10	+ 1.05	1.37	7.0	7	7	7	16	se.	Jos. H. Capser.
St. Paul	Ramsey	837	38	37.6	+ 6.7	65	10	7	18	38	2.66	+ 1.36	1.00	9.7	9	4	11	15	se.	U. S. Weather Bureau

TABLE 1.—*Climatological data for November, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Minnesota—Cont'd.																				
St. Péter	Nicollet	840	16	38.6	+ 5.6	72	6	4	17	40	3.39	+ 2.34	1.06	10.5	4	14	9	7	nw.	Charles C. Cavanaugh.
Sandy Lake Dam	Aitkin	1,234	16	34.0	+ 8.1	63	11	12	21	34	1.77	+ 0.49	1.24	4.2	8	11	2	17	se.	U. S. Engineer Corps.
Shakopee	Scott	750	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
State Sanitorium	Cass	.....	1	31.4	.....	65	10	4	15	35	1.72	.....	1.32	13.5	6	7	6	17	nw.	Dr. W. J. Marcley.
Stillwater§§	Washington	694	4	.....	.....	.....	.....	.....	.....	.....	2.91	.....	0.86	6.5	10	12	3	15	nw.	W. B. Nease.
Taylors Falls	Chisago	.....	2	38.7	.....	66	10†	0	18	32	2.88	.....	1.30	9.3	4	6	7	17	n.	Mpls. Gen. Elec. Co.
Wabasha[m]	Wabasha	662	17	39.1‡	.....	72‡	12	5‡	18	39‡	4.23‡	.....	1.90	6.0‡	5‡	1‡	14‡	9‡	s.	Herman Yost.
Warroad	Roseau	.....	.....	26.7	.....	61	6	−11	23	36	1.65	.....	1.17	17.5	7	12	5	13	s.	John Sawyer.
West Concord	Dodge	1,232	1	36.8	.....	65	4†	0	18	32	5.42	.....	1.45	14.0	5	7	14	9	nw.	O. H. Orcutt.
Willow River	Pine	1,046	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Brandt.
Windom	Cottonwood	1,336	3	36.8	.....	76	4†	2	18	43	3.97	.....	1.53	9.5	6	7	9	14	s.	Taber C. Richmond.
Winnebago§§	Faribault	1,100	10	36.2	+ 1.1	74	4	4	18	38	5.18	+ 4.03	1.57	19.0	9	10	10	10	se.	H. H. Haight.
Winnibigoshish	Itasca	1,300	21	32.0	+ 6.1	63	10	3	22	28	1.87	+ 0.81	1.18	14.2	10	9	3	18	s.	U. S. Engineer Corps.
Winona	Winona	680	14	40.1	+ 6.8	67	10†	7	18	34	5.49	+ 4.25	1.82	6.5	7	10	6	14	e.	P. C. Meyers.
Worthington§§	Nobles	979	14	33.2	+ 1.5	68	4†	5	16†	35	4.31	+ 3.26	1.35	14.1	6	15	1	14	s.	W. I. Carpenter.
Zumbrota	Goodhue	979	14	38.6	+ 6.8	69	6	1	18	34	5.77	.....	1.40	8.0	5	10	6	14	se.	W. C. Rowell.
South Dakota.																				
Millbank	Grant	1,148	20	30.8	+ 0.5	75	6	− 1	15	48	0.74	0.00	0.38	6.1	3	14	2	14	nw.	T. T. Patridge.
Wisconsin.																				
Antigo	Langlade	1,489	14	37.9	+10.1	60	14	4	18	27	3.58	.....	1.74	4.0	5	8	1	21	sw.	E. C. Larzeler.
Barron	Barron	1,115	16	35.6	+ 7.4	65	11	− 8	18	30	4.48	+ 3.22	1.90	11.0	5	3	15	12	se.	W. A. Kent.
Beloit	Rock	750	19	45.0	+ 9.4	68	14	12	23	39	3.51	+ 1.57	1.78	2.0	8	7	8	15	sw.	Smith Observatory.
Brodhead	Green	812	11	44.2	+ 7.0	70	13	16	18†	35	3.55	.....	1.00	4.6	8	12	10	8	sw.	H. D. Kirkpatrick.
Burnett	Dodge	880	5	42.3	.....	66	11†	4	23	28	2.73	.....	0.71	4.0	10	9	7	14	se.	Geo. W. Smith.
Delavan	Walworth	920	16	44.1	+11.7	68	3	8	23	29	2.95	+ 1.16	0.76	3.0	12	6	8	16	sw.	E. S. Austin.
Dodgeville	Iowa	1,116	10	42.8	.....	68	6†	11	23	30	3.47	.....	0.97	4.5	15	5	5	20	se.	Geo. H. Butler.
Downing	Dunn	983	6	37.2	.....	75	10	0	18	40	4.56	.....	2.20	9.0	5	4	4	22	sw.	E. F. Stoddard.
Eau Claire	Eau Claire	800	18	38.6	+ 7.2	66	11	5	18	29	5.42	+ 3.93	2.06	11.8	7	5	11	14	se.	R. D. Whitford.
Ellsworth	Pierce	1,068	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. G. Woods.
Glidden	Ashwood	1,519	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George Sell.
Grand Rapids	Wood	1,021	10	39.5	+ 7.8	64	10	19	15†	31	4.11	+ 2.63	1.22	11.8	10	11	3	16	se.	W. B. Raymond.
Grantsburg	Burnett	1,095	18	35.6	+ 5.3	65	6	0	18	38	3.50	+ 2.11	1.60	16.0	4	9	3	18	ne.	Theodore Olsen.
Hancock	Waushara	1 091	17	39.2	+ 6.8	63	27	2	23	35	2.64	+ 1.31	0.80	4.0	6	11	7	12	se.	F. B. Hamilton.
Hatfield	Jackson	973	1	.....	.....	.....	.....	.....	.....	.....	4.43	.....	1.49	6.9	7	2	13	15	sw.	W. S. Woods.
Hayward	Sawyer	1,197	18	35.2ª	+ 7.2	63ª	11	8ª	18†	31	4.42	+ 3.07	1.60	17.0	7	7ª	5ª	11ª	sw.	W. E. Swain.
Hillsboro	Vernon	1,000	18	38.6	+ 6.2	65	11†	− 9	23	38	4.40	+ 2.92	1.32	9.0	10	6	19	5	e.	E. V. Wernick.
Koepenick	Langlade	1,683	18	35.6	+ 4.6	60	14	2	18	32	3.76	+ 1.94	1.40	10.0	7	0	13	17	se.	E. S. Koepenick.
La Crosse	La Crosse	714	37	40.1	+ 6.3	67	10	11	23	39	5.80	+ 4.28	1.90	8.6	11	6	7	17	s.	U. S. Weather Bureau
Lake Mills	Jefferson	997	18	42.2	+ 8.1	67	13	7	23	30	3.23	+ 1.20	1.12	3.5	10	8	14	8	sw.	S. N. D. Smith.
Lancaster	Grant	1,070	19	42.4	+ 9.4	68	11†	10	23	33	3.62	+ 2.06	1.00	4.0	10	9	13	8	s.	Edward Pollock.
Long Lake	Oneida	1,592	1	35.2	.....	61	14	10	29	35	5.20	.....	1.55	6.8	11	4	7	19	s.	Louie Frank.
Madison	Dane	974	31	42.6	+ 8.4	68	13	15	23	35	2.22	+ 0.42	0.69	4.3	11	5	13	12	s.	U. S. Weather Bureau.
Mather	Juneau	962	.....	36.8	.....	65	5†	− 4	23	41	4.14	.....	0.93	6.0	9	6	9	15	se.	Frank Evans.
Mauston	....do	882	13	41.0	+ 7.2	68	14	− 2	23	30	4.44	+ 3.06	1.10	9.0	8	9	14	7	se.	E. L. Hitchcock.
Meadow Valley	....do	974	18	38.6	+ 6.9	65	11	− 4	23	32	3.74	+ 2.16	1.19	7.0	6	1	19	10	s.	C. H. Johnson.
Medford[a]	Taylor	1,420	18	37.0	+ 7.4	61	11	− 1	18	28	5.10	+ 3.74	1.85	7.5	6	5	6	19	s.	William Zeit.
Merrill	Lincoln	1,267	3	.....	.....	.....	.....	− 1	18	.....	5.89	.....	1.50	6.5	8	13	6	11	s.	F. M. McElroy.
Minocqua[a]	Oneida	1,604	5	33.5	.....	57	11†	8	18	27	5.27	.....	2.10	12.0	4	6	10	14	s.	Charles W. Hooper.
Mondovi	Buffalo	738	1	39.0	.....	65	11	− 1	18	32	4.59	.....	1.01	8.5	6	9	12	9	se.	Dr. Charles Hebard.
Mount Horeb	Dane	1,226	5	41.4	.....	67	13	6	23	30	2.77	.....	0.92	4.0	7	9	8	13	s.	W. M. Lewis.
Muscoda	Grant	666	.....	43.4	.....	69	11	5	23	38	3.46	.....	0.60	4.0	14	8	6	16	e.	Henry Eckstein.
Neillsville	Clark	996	20	38.8	+ 8.1	63	10†	0	18	29	4.75	+ 3.20	1.39	6.0	6	.....	.....	.....	se.	William Henslett.
New Richmond	St. Croix	990	4	37.7	.....	63	4†	2	18	33	3.77	.....	1.10	8.0	6	11	6	13	se.	F. R. Van Meter.
Osceola§§	Polk	806	18	36.8	+ 8.8	65	3	− 3	18	38	4.45	+ 3.21	2.05	8.0	8	9	6	15	s.	C. W. Staples.
Portage	Columbia	809	13	42.0	+ 6.9	66	13	2	23	32	2.26	+ 0.77	0.80	8.0	8	10	11	9	sw.	James Clear.
Prairie du Chien§§	Crawford	690	22	44.8	+ 8.9	70	1†	8	23	38	4.64	+ 3.27	1.21	4.8	9	9	4	17	nw.	John Ducharme.
Prentice	Price	1,551	11	37.0	.....	60	6	− 9	18	35	4.52	.....	1.54	9.0	7	5	2	23	s.	J. G. Lash.
Rhinelander	Oneida	1,550	4	37.0	.....	61	14	8	18†	30	5.32	.....	1.41	11.6	10	5	10	15	nw.	John Lind.
Sauk City	Sauk	758	1	43.6	.....	70	13	2	23	46	2.71	.....	0.91	5.0	8	3	12	15	.....	K. Derleth.
Shullsburg	Lafayette	1,019	3	43.1	.....	67	11†	5	23	32	4.61	.....	1.34	4.0	10	9	8	13	s.	H. B. Chamberlin.
Solon Springs	Douglas	1,083	2	33.5	.....	62	10	− 3	18	37	2.80	.....	1.20	6.0	4	7	4	19	sw.	J. M. Sayles.
Spooner	Washburn	1,104	14	35.5	+ 6.0	63	10†	4	18	31	3.78	+ 2.47	1.90	8.0	5	16	4	10	se.	H. A. Bresee.
Stanley	Chippewa	1,082	5	37.6	.....	61	1†	− 3	18	27	5.12	.....	1.71	8.0	6	10	2	18	se.	L. E. Scott.
Stevens Point	Portage	1,113	16	36.6‡	.....	63‡	3†	4‡	23	26‡	.....	.....	1.00	7.5	7	2‡	5‡	14‡	s.	G. E. Culver.
Valley Junction	Monroe	930	17	38.6	+ 6.1	65	11	− 4	23	29	5.19	+ 3.76	1.19	9.0	9	2	10	18	se.	F. Muermann.
Viroqua	Vernon	1,412	18	40.8	+ 8.4	66	1	10	18†	28	3.75	+ 2.16	1.00	8.0	11	6	12	12	se.	H. E. Rogers.
Vudesare[a]	Vilas	1,600	1	33.6	.....	61	14	0	23	32	4.69	.....	1.53	13.2	8	7	10	13	sw.	L. L. Thomas.
Watertown§§	Jefferson	824	17	41.0	+ 7.5	71	10	0	23	30	2.47	+ 0.73	0.68	3.5	12	6	14	10	se.	Charles J. Salick.
Waukesha (1)	Waukesha	970	13	.....	.....	.....	.....	.....	.....	.....	2.19	+ 0.47	0.64	3.5	8	.....	.....	.....	.....	A. V. B. Dey.
Waukesha (2)	....do	864	1	44.3	.....	68	13	9	23	33	3.01	.....	0.85	4.0	9	3	22	5	s.	Carroll College.
Wausau	Marathon	1,212	17	39.8	+ 8.6	63	14	5	18	35	2.42	+ 0.68	0.72	6.0	6	8	9	13	se.	H. A. Beilke.
Weyerhaeuser	Rusk	1,297	2	36.0	.....	63	11	− 5	18	31	4.06	.....	1.89	14.0	10	6	12	12	se.	Miss Etta Stiles.
Whitehall	Trempealeau	675	17	39.0	+ 5.7	66	11	− 6	18	34	5.30	+ 4.16	1.65	8.0	7	2	20	8	e.	H. A. Towner.
Iowa.																				
Albia§, §§	Monroe	959	10	44.6	+ 5.9	81	5	11	17	39	4.51	+ 2.74	1.08	1.0	11	9	8	13	sw.	J. I. Chenoweth.
Algona§	Kossuth	1,213	34	37.6	+ 4.8	71	4†	4	18	35	8.04	+ 6.76	2.25	23.5	11	9	8	13	sw.	Dr. F. T. Seeley.
Alta§§	Buena Vista	1,513	17	37.8	+ 5.3	74	4	4	17	37	6.13	+ 4.90	1.90	11.0	14	9	8	13	s.	David E. Hadden.
Alta (near)	Buena Vista	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.56	.....	1.40	13.2	13	.....	.....	.....	.....	W. J. Minard.
Amana	Iowa	721	31	44.7	+14.1	73	11	12	23	32	4.14	+ 2.41	0.90	3.0	11	8	12	10	se.	C. Schadt.
Ames	Story	926	27	42.8	+ 8.7	74	6	9	18	40	4.16	+ 2.97	2.07	4.5	10	8	7	15	e.	Iowa State College.
Baxter§	Jasper	998	8	43.4	+ 6.1	76	6	12	17†	38	4.23	+ 2.90	0.75	3.2	14	11	8	11	nw.	W. R. Vandike.
Belle Plaine	Benton	828	18	43.4	+ 8.5	74	6	10	23	39	3.68	+ 1.96	0.70	4.5	11	11	11	8	s.	S. P. Van Dike.
Bloomfield§	Davis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. R. Davis.
Bonaparte§	Van Buren	.....	17	48.0	+ 9.5	79	5	13	18	34	3.84	+ 2.04	1.15	T.	8	.....	.....	.....	.....	B. R. Vale.
Boone§§	Boone	1,134	3	41.4	.....	75	4†	9	18	40	7.67	.....	2.50	5.0	10	12	4	14	.....	Carl Fritz Henning.
Britt§	Hancock	1,236	11	39.4	+ 5.8	72	6	6	18	36	7.55	+ 6.44	2.54	16.6	13	2	14	14	se.	George P. Hardwick.
Buckingham	Tama	.....	8	.....	.....	.....	.....	.....	.....	.....	2.83	+ 1.38	0.84	0.7	8	9	15	6	.....	W. A. Daniel.
Burlington§, §§	Des Moines	544	12	47.5	+ 7.8	76	5†	15	18	35	4.53	+ 2.75	1.35	T.	11	16	4	10	sw.	Max E. Poppe, jr.
Carroll§§	Carroll	1,265	18	38.0	+ 3.8	77	4	3	17	37	7.26	+ 6.13	2.80	7.0	8	6	5	19	nw.	Mrs. Joseph J. Wolfe.
Cedar Rapids§§	Linn	733	26	44.1	+ 8.2	74	12	15	18†	39	2.82	+ 1.42	0.89	1.0	10	14	3	13	w.	W. J. Greene.
Charles City	Floyd	1,015	20	38.9	+ 5.9	69	4	4	23	36	6.06	+ 4.67	1.77	13.6	13	5	6	19	se.	U. S. Weather Bureau.
Clear Lake§	Cerro Gordo	1,241	9	40.5	+ 6.4	70	6	10	18	30	5.87	+ 4.80	2.05	9.5	9	14	0	16	s.	Oscar Stevens.
Clinton	Clinton	593	40	45.2	+ 9.5	70	13	16	18†	33	2.58	+ 0.74	1.11	1.0	9	5	14	11	e.	Luke Roberts.
Columbus Junction§	Louisa	595	7	47.4	+ 8.4	75	6	15	18	32	4.76	+ 3.25	1.20	1.0	9	17	3	10	s.	J. B. Johnston.
Davenport	Scott	580	36	46.8	+ 9.3	72	13	17	18	35	3.92	+ 2.16	1.26	0.7	12	10	9	11	e.	U. S. Weather Bureau.
Decorah	Winneshiek	975	15	40.5	+ 7.0	67	4	0	23	35	7.91	+ 6.36	2.35	9.5	10	.....	.....	.....	.....	F. H. Baker.
Delaware	Delaware	1,083	17	41.7	+ 8.9	68	11	10	23	33	3.54	+ 1.97	0.85	3.0	8	9	15	6	se.	William Ball.

TABLE 1—*Climatological data for November, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Iowa—Cont'd.																				
Des Moines	Polk	861	31	44.8	+ 8.0	76	6	14	17†	36	3.71	+ 2.25	1.67	1.8	11	5	4	21	s.	U. S. Weather Bureau.
De Soto‖	Dallas	866	8	44.8	+ 6.1	81	5	12	17†	42	4.27	+ 3.05	1.29	1.0	10	11	4	15	sw.	R. D. Minard
Dows‖	Wright	1,142	8	40.6	+ 5.7	73	4†	2	23	34	6.04	+ 4.80	2.62	.....	7	8	4	18	nw.	G. R. Flett.
Dubuque	Dubuque	639	35	44.2	+ 8.2	71	13	13	23	36	2.94	+ 1.13	1.19	3.5	12	9	10	11	s.	U. S. Weather Bureau.
Earlham	Madison	.....	6	44.8	+ 7.0	79	5†	13	17†	41	5.87	+ 4.53	1.32	5.0	11	9	3	18	se.	George Phillips.
Elkader	Clayton	727	27	39.4	+ 6.2	72	4	12	18	40	4.51	+ 2.86	1.21	4.0	8	13	3	14	se.	Charles Reinecke.
Elma	Howard	.....	.....	.....	.....	66	4†	.....	.....	.....	6.03	.....	1.47	14.5	9	6	11	13	se.	H. A. Moore.
Estherville‖‖	Emmet	1,298	12	36.2	+ 4.9	75	4	0	18	44	3.46	+ 2.22	1.05	12.0	10	13	3	14	s.	A. O. Peterson.
Fairfield	Jefferson	.....	14	48.0[b]	+11.1	80[b]	5	15[b]	18	37[b]	4.72	+ 2.44	1.65	0.5	9	.....	.....	.....	s.	R. M. McKenzie.
Fayette‖	Fayette	1,003	18	41.1	+ 8.2	68	6†	2	23	37	4.36	+ 2.94	0.90	5.8	11	9	7	14	se.	R. Z. Latimer.
Forest City‖, ‖‖	Winnebago	1,226	14	37.6	+ 5.2	73	4	3	18	36	7.21	+ 5.98	1.90	15.5	9	11	5	14	w.	J. A. Peters.
Fort Dodge‖‖	Webster	1,126	8	39.2	+ 4.0	75	4†	7	18	38	7.14	+ 5.92	2.20	9.5	9	15	0	15	s.	J. F. Monk.
Fort Madison	Lee	516	59	.....	.....	.....	.....	.....	.....	.....	4.28	+ 2.14	2.25	.....	6	8	8	14	sw.	Miss L. A. McCready.
Gilman	Marshall	1,052	9	.....	.....	.....	.....	.....	.....	.....	3.97	+ 2.57	0.65	T.	11	.....	.....	.....	.....	J. L. Wylie.
Grand Meadow	Clayton	1,180	17	41.2	+ 8.2	67	10	5	23	32	4.44	+ 2.88	1.03	7.0	10	3	12	15	se.	F. L. Williams.
Greene	Butler	.....	9	40.6	+ 4.7	70	4	4	23	36	7.54	+ 6.39	2.20	11.0	9	5	10	15	s.	J. L. Cole.
Grinnell	Poweshiek	1,023	16	45.5	+ 9.5	75	4†	12	18	36	4.28	+ 2.65	1.58	2.5	10	9	8	13	s.	D. W. Brainard.
Grundy Center‖	Grundy	976	17	43.0	+ 9.0	71	4†	10	23	36	5.78	+ 4.56	1.90	2.0	8	6	8	16	nw.	J. B. Calderwood.
Guthrie Center‖	Guthrie	1,077	13	43.5	+ 6.2	78	4	9	18	39	7.78	+ 6.63	3.68	7.0	13	12	1	17	nw.	D. G. Beardsley.
Hampton	Franklin	1,155	18	40.1	+ 6.7	75	4	5	18	36	6.74	+ 5.18	1.50	14.0	12	7	11	12	se.	E. C. Grenelle.
Humboldt	Humboldt	1,095	17	40.4	+ 6.4	74	6	2	18	40	11.48	+10.11	3.44	14.0	9	13	4	13	nw.	Henry S. Wells.
Independence‖	Buchanan	921	43	43.8	+11.2	69	4†	6	23	36	2.07	+ 0.75	0.58	4.5	6	12	7	11	s.	George Donohoe.
Indianola	Warren	969	17	46.0	+ 7.7	78	5	14	18	34	5.09	+ 3.67	1.12	4.0	11	8	0	22	se.	John L. Tilton.
Iowa City‖‖	Johnson	683	49	43.4	+ 7.7	73	6†	11	24	41	4.88	+ 2.62	1.12	2.0	12	12	0	18	bw.	Arthur G. Smith.
Iowa Falls‖‖	Hardin	1,170	15	39.6	+ 6.5	70	4†	8	18	39	5.70	+ 4.45	1.30	6.5	12	12	1	17	s.	J. B. Parmelee.
Jefferson‖	Greene	.....	.....	42.5	.....	77	5	10	18	37	6.13	+ 4.82	2.71	8.0	8	8	5	17	nw.	G. W. Jackson.
Keokuk	Lee	547	37	50.2	+10.8	79	5	17	18	29	3.97	+ 2.12	1.33	T.	9	9	9	12	se.	U. S. Weather Bureau.
Keosauqua‖‖	Van Buren	644	16	46.6	+ 7.7	78	5	14	18†	41	3.28	+ 1.78	1.00	5.0	10	5	15	10	.....	J. H. Landes.
Knoxville‖	Marion	920	12	46.9	+ 9.4	77	6	15	17†	34	5.67	+ 4.38	2.10	2.0	10	10	4	16	sw.	Casey & Belville.
Lacona	Warren	.....	9	.....	.....	.....	.....	.....	.....	.....	4.59	+ 3.12	1.20	2.0	12	3	17	10	.....	J. B. Alter.
Le Claire	Scott	576	.....	.....	.....	.....	.....	.....	.....	.....	5.10	+ 3.63	1.08	1.5	15	.....	.....	.....	.....	Miss Margaret T. Disney.
Marshalltown‖‖	Marshall	947	16	41.6	+ 5.6	74	6	11	18	39	4.31	+ 3.02	1.05	2.5	11	10	2	18	s.	Rolph B. Reasoner.
Mason City‖	Cerro Gordo	1,132	11	38.0	+ 5.2	68	4	4	23	36	6.73	+ 5.09	2.33	13.2	8	9	13	8	nw	J. S. Mills.
Mount Pleasant‖	Henry	729	26	47.7	+10.3	74	6	15	18	32	4.95	+ 3.39	2.05	0.8	9	11	9	10	sw.	J. W. Edwards.
Muscatine	Muscatine	.....	49	.....	.....	.....	.....	.....	.....	.....	5.53	+ 3.26	1.54	0.4	11	.....	.....	.....	.....	William Molis.
New Hampton‖	Chickasaw	1,169	11	39.2	+ 4.5	66	6	2	23	29	7.16	+ 5.76	2.22	8.0	8	14	4	12	sc.	A. F. Kemman.
Newton‖	Jasper	944	19	45.6	+10.8	72	6	13	18	28	3.30	+ 1.65	0.86	3.0	7	11	6	13	s.	J. P. Beatty.
Northwood‖	Worth	1,222	12	37.6	+ 4.4	68	4	2	18	34	7.40	+ 5.92	2.50	20.0	7	13	6	11	se.	Charles H. Dwelle.
Olin‖	Jones	760	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. M. Miles.
Osage	Mitchell	1,184	17	40.0	+ 9.1	70	4†	4	18	35	7.51	+ 6.08	2.05	18.0	8	8	4	18	s,	A. D. Bundy.
Oskaloosa‖	Mahaska	843	24	46.5	+ 9.5	75	6	15	18	37	4.01	+ 2.52	2.00	1.2	8	11	0	19	se.	Joseph Boyd.
Ottumwa	Wapello	649	14	48.4	+ 8.9	80	5†	15	18†	38	.....	.....	.....	1.2	.....	4	6	20	se.	.....
Pella	Marion	877	6	45.7	+ 8.4	78	10	11	23	41	5.50	+ 4.07	2.18	2.0	10	14	.....	16	s,	John H. Ver Steeg.
Perry‖	Dallas	975	7	42.8	+ 5.0	73	4†	10	18	38	5.35	+ 3.90	2.75	.....	10	9	9	12	n.	J. A. Harvey.
Plover	Pocahontas	1,426	12	37.8	+ 3.5	73	6	0	18	36	4.73	+ 3.11	1.50	29.5	9	12	6	12	n.	J. S. Smith.
Pocahontas‖	...do	.....	4	37.3	.....	74	4†	8	23	38	6.92	.....	1.80	18.0	8	11	11	8	s.	F. E. Hronek.
Ridgeway‖	Winneshiek	1,215	10	41.3	+ 4.1	76	3	5	18†	36	9.50	+ 7.68	2.10	14.1	12	9	9	12	s.	Arthur Betts.
Rockwell City‖	Calhoun	.....	12	41.4	+ 6.4	74	6	7	17†	40	8.90	+ 7.80	3.50	8.0	8	12	4	14	.....	C. M. Randall.
Sac City	Sac	1,278	26	39.3	+ 5.8	72	4†	5	18	32	7.24	+ 6.13	1.98	10.4	10	11	1	18	sw.	E. N. Baily.
St. Charles‖	Madison	1,070	7	46.4	+ 5.3	84	5	11	17	41	5.18	+ 3.75	1.62	3.0	11	15	3	12	nw.	R. D. Minard.
Sigourney‖	Keokuk	877	12	46.4	+ 7.5	75	6	13	18	33	5.30	+ 3.75	0.97	3.0	12	3	20	7	se.	J. T. Parker.
Stockport‖	Van Buren	.....	6	46.2	.....	79	5	12	18	38	3.51	+ 2.00	1.13	0.5	12	12	5	13	s.	C. L. Beswick.
Storm Lake	Buena Vista	1,440	12	40.0[d]	+ 3.9	71[a]	4	4[d]	17	34[d]	3.91	+ 2.89	1.19	10.5	7	.....	.....	.....	.....	S. B. Fracker.
Stuart	Guthrie	1,216	10	41.0[c]	+ 5.0	77[c]	4	10[c]	17	37[c]	.....	.....	.....	4.5	.....	.....	.....	.....	.....	.....
Tipton‖	Cedar	807	10	45.6	+ 8.8	70	11†	16	18	29	4.58	+ 2.76	1.41	2.0	....	11	12	7	se.	F. K. Gregg.
Toledo‖	Tama	856	14	44.2	+ 7.8	71	6†	9	23	35	4.07	+ 2.56	0.75	3.0	10	9	9	12	se.	I. F. Giger.
Wapello‖	Louisa	588	10	48.2	+ 7.0	74	6	18	18	30	3.29	+ 1.89	0.86	T.	10	10	10	10	se.	G. W. Schofield.
Washington	Washington	769	27	46.4	+10.2	76	5†	14	18	34	6.04	+ 4.63	1.98	.....	11	9	11	10	sw.	Wm. A. Cook.
Waterloo‖‖	Black Hawk	862	25	42.8	+ 7.1	72	4	11	23	36	3.06	+ 1.61	0.84	4.0	9	7	9	14	nw.	M. L. Newton.
Waukee	Dallas	1,039	5	43.7	.....	76	5	12	18	40	4.51	+ 3.02	1.31	2.8	13	7	12	11	ne.	Samuel F. Foft.
Waverly‖	Bremer	948	12	44.9	+ 6.8	69	4†	9	23	35	6.31	+ 4.91	2.15	6.0	10	5	8	17	s.	H. S. Hoover.
Webster City‖	Hamilton	.....	3	43.4	.....	73	6	7	18	34	6.86	.....	2.23	8.0	8	9	4	17	nw.	C. D. Carpenter.
West Bend‖	Palo Alto	1,197	14	38.6	+ 6.1	71	4†	3	18	33	6.23	+ 4.89	2.64	12.8	10	8	7	15	s.	Joseph Dorweiler.
Whitten‖	Hardin	1,036	10	42.5	+ 7.2	78	4	9	18	39	4.48	+ 3.35	1.50	T.	6	9	5	16	se.	F. P. Butler.
Wilton Junction‖	Muscatine	683	13	48.2	+10.9	70	5†	15	18	32	4.63	+ 2.86	1.20	T.	8	8	13	9	w.	William Lang.
Winterset‖	Madison	1,129	17	44.2	+ 7.4	75	5	13	17†	35	4.26	+ 2.97	1.17	3.0	9	11	5	14	s.	Robert S. Cooper.
Zearing‖	Story	.....	4	42.0	.....	75	4	9	22	40	5.27	.....	1.85	3.5	7	1	15	14	se.	Orley Reese.
Missouri.																				
Darksville	Randolph	826	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Broaddus.
Gorin	Scotland	.....	23	.....	.....	.....	.....	.....	.....	.....	3.00	+ 0.88	1.28	T.	8	10	4	16	se.	J. W. Pulliam.
Hannibal	Marian	534	18	51.4	+10.9	80	5	19	18	34	2.72	+ 0.77	1.04	T.	8	9	9	12	sw.	U. S. Weather Bureau.
Louisiana	Pike	500	31	50.4	+ 6.8	80	5	20	17†	39	3.77	+ 1.58	1.00	T.	8	15	4	11	sw.	J. F. Farrell.
Mexico	Audrain	797	31	51.2	+ 8.7	82	5	18	18†	46	5.80	+ 3.46	1.55	T.	13	10	4	16	s.	J. F. Llewellyn.
Steffenville	Lewis	576	15	50.4	+ 7.3	84	5	16	18	38	3.25	+ 1.52	.85	0.0	7	12	8	10	s.	Frank Hall.
Sublett	Adair	1,000	29	49.0	+ 8.8	79	5	15	16	36	2.00	+ 0.17	2.00	0.0	1	7	15	8	sw.	Lewis Spriggs.
Indiana.																				
Collegeville	Jasper	.....	....	49.4	.....	74	12	22	24	32	4.20	.....	1.10	T.	9	5	15	10	nw.	Prof. L. C. Klosterman.
Knox‖	Starke	716	...	48.0	.....	71	11	19	24	29	4.44	.....	1.41	T.	11	12	8	10	s.	W. R. R. Tatman.
Laporte	Laporte	810	4	46.5	.....	72	11	24	23	26	3.92	.....	1.79	0.4	9	6	6	13	w.	Chas. D. Rakestraw.
Plymouth	Marshall	790	...	47.2	.....	70	11†	21	24	26	3.32	.....	1.08	0.0	10	11	12	7	se.	J. W. Siders.
Illinois.																				
Aledo	Mercer	738	9	47.6	.....	74	5†	15	18	31	4.79	.....	1.31	0.5	11	5	15	10	se.	William B. Frew.
Alexander	Morgan	670	16	51.2	+ 8.4	77	7	18	18	34	4.54	+ 2.43	1.34	T.	9	12	7	11	s.	George H. Hall.
Antioch	Lake	861	8	44.4	.....	68	13	16	22	30	3.23	.....	1.20	2.0	5	6	14	10	s.	J. C. James, jr.
Ashton	Lee	830	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. J. Yenerich.
Astoria	Fulton	650	9	49.1	+ 7.8	77	7	17	18	35	4.19	+ 2.31	1.35	T.	8	12	7	11	s.	Edward V. Bohl.
Aurora	Kane	687	30	46.6	+ 9.1	70	11†	20	23	32	4.33	+ 1.76	1.13	T.	10	5	11	14	se.	W. Holden.
Bement	Piatt	700	10	51.8[a]	.....	78[a]	7	24[a]	23	34[a]	2.98[a]	.....	1.10	0.0	6[a]	6	14	10	s.	Rev. C. S. Adams.
Benton	Franklin	598	7	.....	.....	.....	.....	.....	.....	.....	3.30	.....	1.40	0.0	7	8	9	13	nw.	F. H. Stamper.
Bloomington	McLean	840	17	49.6	+ 8.6	76	6	19	18	33	4.28	+ 1.64	1.54	0.0	8	10	6	14	s.	Prof. H. N. Pearch.
Cairo	Alexander	359	33	57.3	+10.4	82	5	28	18	32	2.58	− 1.44	0.80	0.0	7	11	7	12	s,	U. S. Weather Bureau.
Cambridge	Henry	824	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. O. Purviance.
Carlinville	Macoupin	663	19	53.1	+10.1	80	7	20	18	36	3.76	+ 1.10	1.27	0.0	7	10	11	9	se.	John H. Seaton.
Chester	Randolph	380	5	57.3	.....	82	6	28	18	36	3.76	.....	0.98	0.0	9	15	9	6	s.	F. A. Gollon, jr.
Chicago	Cook	824	36	48.5	+ 9.3	71	11	28	23	28	3.84	+ 1.34	1.31	T.	12	4	11	15	s.	U. S. Weather Bureau.
Coatesburg	Adams	763	15	50.0	+ 8.4	77	7	17	18	34	3.54	+ 1.41	1.25	0.0	6	9	6	15	s.	Dr. J. R. Lambert.
Cobden	Union	656	26	57.6	+10.5	82	3†	23	18	39	4.31	− 0.06	1.43	0.0	5	14	7	9	s.	John Buck.

TABLE 1.—*Climatological data for November, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Illinois—Cont'd.																				
Colchester	McDonough	694	7																	Eli V. Kinsey.
Dakota	Stephenson	929	....	43.9	.....	69	13	8	24	30	3.77	.....	1.07	4.5	14	7	13	10	e.	Harold Leitzel.
Decatur	Macon	685	17	50.8	+ 9.1	76	6†	19	18†	45	3.13	+ 0.64	1.05	0.0	8	18	3	9	s.	Prof. J. H. Coonradt.
Dixon	Lee	725	19	45.2	+ 8.2	70	13†	15	23	34	2.59	+ 0.97	0.80	T.	11	14	1	15	s.	Mrs. E. E. Shaw.
Du Quoin	Perry	459	18	57.1	+11.6	85	3†	22	18	43	3.13	+ 0.12	1.08	0.0	8	17	6	7	sw.	G. H. Knetzger.
Dwight	Livingston	600	15	48.2	+ 8.4	71	5†	20	23	33	4.24	+ 1.56	1.65	T.	11	8	8	14	ne.	Edward O. Welsh.
Galva	Henry	842	17	46.4	+ 8.3	75	6	16	18†	38	5.39	+ 3.55	1.97	1.1	12	13	8	9	sw.	Prof. F. U. White.
Greenville	Bond	635	26	53.0	+10.2	78	6	26	23	31	5.09	+ 1.62	1.33	0.0	9	10	5	15	se.	M. S. Oudyn.
Griggsville	Pike	650	22	50.9[b]	+ 8.8	79[b]	7	17[b]	18	36[b]	3.30[b]	+ 1.07	1.35	0.0[b]	6[b]	9	13	8	se.	George F. Kneeland.
Halfway	Williamson	569	13	56.6[a]	+ 8.5	82[a]	5	23[a]	18	36[a]	3.51[a]	+ 0.77	0.97	3.0[a]	6[a]	15	5	10	s.	E. L. Hearn.
Havana	Mason	475	16	51.2	+ 8.8	76	7	19	18	31	3.61	+ 1.45	1.40	0.0	7	6	21	3	ne.	F. & C. Borgelt.
Henry	Marshall	500	20	48.4	+ 9.5	75	5	17	18	34	4.66	+ 2.23	1.19	0.0	12	16	5	9	sw.	Dr. F. A. Powell.
Hillsboro	Montgomery	675	14	55.0[b]	+10.6	78[b]	5†	20[b]	18	37[b]	6.23[b]	+ 3.52	2.45	0.0[b]	7[b]	9	4	17	s.	Ira L. Woodward.
Joliet	Will	541	17	46.8	+ 7.6	73	11	23	23	33	4.55	+ 2.18	1.35	T.	13	13	4	13	sw.	F. M. Muhlig.
Kishwaukee	Winnebago	730	19	45.4	+ 8.1	70	15	10	23	30	4.11	+ 1.85	1.44	2.0	11	8	10	12	s.	George Stevens.
Knoxville§	Knox	775	19	48.2	+ 9.2	74	6	13	18	34	5.52	+ 3.46	2.25	T.	8	12	8	10	s.	C. N. Butt.
La Grange	Cook	657	16	46.4	+ 7.9	71	11	22	23†	29	4.05	+ 1.68	1.17	T.	8	10	9	11	sw.	Prof. F. E. Sanford.
La Harpe	Hancock	698	30	50.0	+10.1	78	7	16	18	43	3.61	+ 1.60	1.10	T.	8	14	4	12	se.	John S. Campbell.
Lanark	Carroll	883	18	44.2	+ 7.9	69.	13	2	23.	38	4.37	+ 2.37	1.05	4.0	12	19	2	9	se.	M. N. Wertz.
La Salle	La Salle	536	33	47.2	+ 9.4	72	5	20	18	31	3.82	+ 1.18	1.10	T.	12	9	8	13	sw.	U. S. Weather Bureau.
Lincoln	Logan	482	20	49.8	+ 8.3	74	7	19	18	32	4.22	+ 1.85	1.05	T.	7	15	4	11	s.	Prof. C. S. Oglebee.
Martinton	Iroquois	633	21	48.4	+ 8.5	75	6	24	23†	36	5.53	+ 2.97	1.83	T.	9	12	4	14	sw.	Joseph H. Peltier.
Mascoutah	St. Clair	425	18	55.8	+11.2	83	5	22	18	42	4.56	+ 1.25	0.98	0.0	9	14	7	9	se.	George Henrich.
Minonk	Woodford	745	15	48.6	+ 8.6	76	6†	18	18	35	3.83	+ 1.79	1.17	T.	8	8	14	8	sw.	O. M. Davison.
Monmouth	Warren	784	16	48.7	+ 9.4	76	5	16	18	30	5.98	+ 4.12	2.35	0.0	9	10	11	9	se.	Hugh R. Moffet.
Morrison	Whiteside	685	13	47.0	+ 8.5	71	13	14	23	38	4.50	+ 2.71	1.02	1.0	11	14	6	10	se.	Harold A. Maxwell.
Morrisonville	Christian	638	9	51.6	+ 7.9	76	7	19	18	37	2.74	+ 0.65	0.97	0.0	7	13	9	8	s.	J. D. Lowis.
Mount Vernon	Jefferson	511	14	54.6	+ 8.7	83	7	23	18†	42	3.23	+ 0.22	0.95	0.0	8	11	9	10	s.	Theodore P. Stelle.
Oregon	Ogle	702	....	46.3	.....	70	6†	11	23	30	5.07	.....	1.51	1.5	8	10	6	14	se.	Samuel Ray.
Ottawa	La Salle	500	23	47.8	+ 8.5	72	5	21	17†	34	2.57	+ 0.15	1.14	T.	9	15	1	14	sw.	Miss Maud M. Harris.
Pana	Christian	692	22	51.2	+ 9.1	73	2†	21	18	28	4.48	+ 1.11	1.05	0.0	11	20	1	9	s.	C. W. Sibley.
Peoria	Peoria	609	33	48.0	+10.5	74	6	18	18	30	5.53	+ 2.89	1.47	T.	12	8	14	8	s.	U. S. Weather Bureau.
Pontiac	Livingston	546	7	49.8	.....	79	14	20	18	33	4.00	.....	1.85	0.0	11	9	10	11	se.	George Butterworth.
Riley	McHenry	956	50	44.8[a]	+10.3	66[a]	13†	12[a]	23	29[a]	3.91[a]	+ 1.94	0.88	2.0[a]	12[a]	7	9	14	sw.	John West James.
Rockford	Winnebago	763	13	43.6	+ 6.4	68	11†	11	23	33	4.15	+ 1.71	1.28	1.2	14	10	7	13	.....	Hosmer C. Porter.
Rushville	Schuyler	670	8	50.0	+ 9.4	77	7	18	18	30	2.57	+ 0.41	0.92	0.0	6	6	6	18	s.	H. F. Dyson.
St. Charles	Kane	700	12	46.2	+ 7.9	70	1†	19	23	31	5.27	+ 2.82	1.40	2.0	13	10	11	9	sw.	Dr. Wm. H. Bishop.
Springfield	Sangamon	644	28	50.4	+ 9.7	75	7	20	18	27	3.70	+ 1.04	1.27	0.0	9	8	11	11	s.	U. S. Weather Bureau.
Staunton	Macoupin	625	....	55.7[m]	.....	81[m]	2	29[m]	17	....	5.49[m]	.....	2.75	0.0[m]	6[m]	10	5	15	s.	William F. Schaefer.
Streator	La Salle	626	15	47.2	+ 7.0	74	5†	19	18	37	3.73	+ 1.35	1.39	0.0	12	13	10	7	sw.	Edward F. Sweetser.
Sullivan	Moultrie	530	9	51.8	+ 8.4	78	5†	19	18	35	3.34	+ 0.89	0.98	0.0	6	10	11	9	se.	C. A. Corbin.
Sycamore	De Kalb	855	28	45.0	+ 8.8	71	13	14	23	46	5.42	+ 3.01	1.22	T.	15	6	8	16	se.	Miss E. J. Davis.
Tilden	Randolph	500	23	56.4	+11.3	83	3	21	18	43	5.56	+ 1.96	1.96	0.0	10	17	3	10	s.	James A. Caldwell.
Tiskilwa	Bureau	798	14	47.6	+ 8.5	73	5†	15	18	34	3.67	+ 1.47	1.07	T.	11	12	5	13	s.	F. I. Smucker.
Walnut	....do	717	17	47.2	+ 8.1	71	6	18	18	31	5.24	+ 3.34	1.11	1.0	10	15	6	9	s.	O. C. Nussle.
White Hall	Green	573	....	51.5	.....	79	7	18	18	39	5.85	.....	1.62	0.0	9	12	8	10	s.	Dr. R. A. Pritchett.
Windsor	Shelby	681	10	52.0	+ 9.8	79	5†	18	18	36	3.73	+ 0.87	0.93	0.0	9	11	9	10	s.	Herbert Rose.
Winnebago	Winnebago	900	21	44.8	+ 8.4	69	13	11	23	28	4.00	+ 1.90	1.17	3.0	10	16	4	10	s.	Frank Osborn.
Yorkville	Kendall	584	21	45.9	+ 9.4	70	11	19	23	30	4.82	+ 2.38	1.38	T.	11	13	3	14	w.	Herman A. Grimwood.
Zion	Carroll	938	13	45.8	+ 8.8	69	6†	12	23	29	4.92	+ 3.09	1.21	T.	10	15	4	11	sw.	Robert F. Gillogly.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [m], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 5, Upper Mississippi Valley.*

Stations.	River basins.	Day of month																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
North Dakota.																																	
Amenia	Red																												T.				T.
Bottineau	Mouse					T.						.11	T.					T.	T.	T.	.36			T.			T.						0.47
Cando	Sheyenne																							.34									0.34
Crosby	Mouse		T.							T.	.05	T.	T.	T.				T.		T.	.16	.11	.11	T.		T.		.10	.05			0.58
Devils Lake	Sheyenne		T.			T.				.01	.05	T.	.02	T.		T.	.01	T.	T.	.10		.02	.03		T.		T.					0.26
Donnybrook	Mouse										T.	T.	T.							.20												0.20
Dunseith	....do										.10						T.			.30												0.40
Edmore	Sheyenne												T.				T.		T.													T.
Forman	....do													T.	T.	.40	.10															0.50
Grafton	Red														.20									.20				.05				0.45
Granville	Mouse											.04	.02																			0.06
Hamilton	Pembina																															
Hannah	....do		.02		T.										T.		T.			.10							.60					0.72
Hansboro	Red											T.			T.				.04		.20		.06	.02								0.32
Hillsboro	....do											T.				.80		.02			.03			.03			.02	.05				0.95
Lakota	Sheyenne		T.									T.	T.		T.		T.			T.	.10		.10	.10		T.	T.	.20				0.50
Langdon	Pembina											.05									.17				.21								0.43
Larimore	Red																															
Lisbon	Sheyenne													T.	.30	.20	.10	T.			T.								T.				0.60
McKinney	Mouse		T.																		.40	.10											0.50
Manfred	Sheyenne									T.	T.	T.	.10	T.							T.			.10									0.20
Mayville	Red														.40													.10					0.50
Milnor	Sheyenne																															
Minot	Mouse											.02	.02	.06	T.						.05		.01	.06			T.						0.22
Minto	Red												.02						.18					.40			.20						0.80
Oriska	Sheyenne												T.	*	.60												T.						0.60
Park River	Red																															
Pembina	....do											.01				.01																	0.02
Portal	Mouse																															
Power	Sheyenne													*	1.60		.10			T.			.05					.10					1.85
Pratt	Mouse										T.	T.										.20	.02	.02									0.24
Towner	....do																															
University	Red											T.			.60	.05					T.	.05					T.		.05		T.		0.75
Wahpeton	....do																															
Walhalla	Pembina																															
Westhope	Mouse										T.	.11								T.	.25			.10			T.						0.46
Willow City	....do											.10	T.								.10		.05	.05									0.30
Minnesota.																																	
Albert Lea	Mississippi	1.30										1.55		2.00			.75						.80					T.		T.			6.40
Alexandria[][]	....do													.08	.80	T.	.21	T.									.04	.10			T.		1.23
Angus	Red									.50				.35				.05		.08		.10	.05		.02		.05						1.20
Bagley	....do											T.		.10	.60	.50					.10		.04	.05				T.					1.39
Baudette	Rainy														.28	.92			T.	T.	T.	T.	.08	.22				T.	.15				1.65
Beardsley	Minnesota													.18	.92			.17															1.27
Beaulieu	Red										T.	T.		.10	.60		T.						T.	T.			T.	T.	.12				0.82
Bird Island	Minnesota	.29			T.									.29	.90	T.	.31				T.			T.			.03	T.					1.82
Caledonia[][]	Mississippi	.54						T.			T.	1.90	.61	.36		.26	.16		T.			.85	T.		.10			T.					4.78
Campbell[][]	Red													.10	.30	T.	.10											T.					0.50
Cass Lake[][]	Mississippi		T.								T.		T.	1.10	.25		T.				T.							T.	.30				1.65
Collegeville	....do	T.									T.			.10	.91		.42								.02				T.				1.45
Crookston[][]	Red												T.			1.00		.05	T.	T.	.05			.05	.05		T.	T.					1.20
Detroit[][]	....do							T.		T.		T.		T.	.10	.65	.05	.05	T.			T.		T.	T.		T.		.20				1.05
Fairmont	Minnesota	1.48										.48		.20	1.05		1.40				T.		.90	.10				T.					5.61
Faribault	Mississippi	1.99										.56		.82	.28		.45					T.					T.	.06			T.		4.16
Farmington	....do	1.32										.23		.52	.56		.90				T.			T.	T.		T.	T.					3.53
Fergus Falls	Red													.10	.54		.20	.03						.02			.04	.01			.01		0.95
Fort Ripley[][]	Mississippi										T.	T.		.10	1.12	.14	.05	.20						T.				T.	T.				1.51
Fosston	Red											.01		.24		.70			T.		.15		T.	T.			T.	.05					1.15
Glencoe	Mississippi	.28												.20	.85		.52					T.		T.			T.	T.					1.85
Grand Meadow	....do	1.75							.19			1.65		2.87			.09	.35			.07	.71	T.	T.			.08	T.	.03	T.	.03			7.82
Hallock	Red		.02									T.			.10		T.	T.			.05		.10					T.					0.27
Halstad[][]	....do												T.		.70	.65	T.						T.										1.35
Hinckley	St. Croix	.19									T.			.30	.68		1.50			T.				T.			.40	T.			.20		3.27
International Falls	Rainy										T.				.60				T.	T.	T.	T.	T.	.40	.10	T.	.50	T.	.10	T.			1.70
Kelliher	Red										T.			.03	1.20		.06	T.	T.		.09	T.	.05	.12			.06	T.	.12				1.73
Lake Crystal	Minnesota	.72									.14			T.	1.18		1.00					T.					.03	.08					3.15
Leech Lake Dam	Mississippi										.02			.03	.55		.02				.04		.03	.09	.01		.15	.05			.03		1.02
Litchfield	....do													1.50			1.10																2.60
Little Falls	....do									T.	T.			.20	1.53		.40					T.	T.	T.	T.	T.	.10	T.			T.		2.23
Long Prairie	....do										.07		T.		1.47		.30							T.	T.	T.	.16	.01			T.		2.01
Lynd(2)	Minnesota	.06												*	1.70	T.	.24	T.						T.			T.						2.00
Mankato[][]	Minnesota	.47	.29									.18		.33	1.10		.31	.02				T.											2.70
Milaca	Mississippi	.14												.24	1.11		1.00							T.	.04		T.			T.			2.53
Milan	Minnesota													.25	T.	.15	.30							T.						T.			0.70
Minneapolis(1)	Mississippi	.52			T.					T.	T.	T.	.04	.86	.34	.05	.87				T.	T.		T.	.05		T.	.01		T.			2.74
Minneapolis(2)	....do	.65			.01					T.	T.	T.	T.	.92	.42		.74				T.			T.	.08		T.	.02					2.84
Montevideo[][]	Minnesota	T.			T.									.16	1.18	.02	.40							T.			T.						1.76
Moorhead	Red													.08	1.26		.06				T.		T.	T.			T.	.04					1.44
Mora	St. Croix	.09									.02			.13	1.03		.45								.02		.01			.01			1.76
Morris	Minnesota													.20	.80		.50																1.50
New London	Mississippi	T.												.10	.90	.70													T.	T.	T.		1.70
New Richland	Minnesota	1.20								T.		.73		.39	.14	T.	.87					T.	.34	T.			T.	T.					3.67
New Ulm[][]	....do	.65	.11									.05		T.	1.15	T.	.73	.46				T.	T.	T.	T.	T.	T.	T.		T.			3.15
Osakis	Mississippi													.05	1.13	T.	.16	T.							T.		T.	.01			T.		1.35
Park Rapids[][]	....do							.01				.03			.70	.10	.12	.02		T.	T.			.01	.05	T.	T.	.10	.02		T.		1.16
Pine River Dam	....do										10			.40	.60		.18										.06			.05			1.39
Pokegama Falls	....do										T.			.05	.71		.21	T.		T.	.04		.03	.16			T.			T.			1.20
Red Lake	Red										T.				.36		.15					.12	.08	.12			T.		.14				0.97
Red Wing	Mississippi	2.35										.95		1.10			1.20						T.		T.	T.	T.	.30	T.	T.			5.90
Red Wing (river)[][]	....do	.94	1.40									.26	.42	.54	1.02		.44	.42							T.	T.	T.	T.	.06				5.50
Redwood Falls	Minnesota	.93												.20	1.53		.70					.10											3.46
Reeds Landing[][]	Mississippi	.98	.92									.48	.54	.38	1.50		.16	.08											.04				5.08
Rochester[][]	Mississippi	1.04	.12									.80	.45	1.35	.85		.20	.40					.70											5.91
Roseau	Rainy											T.	T.		*	2.00			.12		T.		.16	T.									2.28
St. Charles[][]	Mississippi	.78	.18									.40	.25	.65	.66		.70	.20					.53		T.	.02			.03		T.		4.22
St. Cloud	....do	.08												.16	1.37		.42								.04	.01	.02						2.10
St. Paul	....do	.50			T.				T.	T.	.01	.05	.97	.16	.05	.87					T.			T.	.02		T.	.03			T.		2.66
St. Peter	Minnesota	.92						T.					.36	1.06		1.05												T.			T.		3.39
Sandy Lake Dam	Mississippi												.03	1.24		.19				.11			.08		.03		.07			.02		1.77
Shakopee	Minnesota																																
State Sanitorium	Mississippi												.05	1.32		.17							.03	.03			.12			T.			1.72
Stillwater[][]	St. Croix	.86	.24									.04	.10	.28	.86		.16	.22							T.		T.	.14			.01		2.91
Taylors Falls	....do	1.30								T.				.30	.70		.58										T.	T.					2.88
Wabasha	Mississippi	1.90	.04									1.22	.07			1.00																	4.23

TABLE 2.—*Daily precipitation for November, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Minnesota—Cont'd.																																	
Warroad	Rainy			.05							.01		T.		1.17				.20					.10	.07		.05					1.65
West Concord	Mississippi	1.45										1.23		.90	.74		1.10																5.42
Willow River	St. Croix																																
Windom	Des Moines	.72									T.	.16		.30	1.53		1.00					T.	.26	T.			T.	T.		T.	T.	3.97
Winnebago	Minnesota	1.57	.14					T.	T.			.45	.09	.15	1.26		.72	.20				T.	.60	T.	T.				T.				5.18
Winnibigoshish	Mississippi		T.	.04							T.			.03	1.18		.18			T.	.09		.05	.12	T.		.03	.10	.05		T.		1.87
Winona	...do	1.49						.09				1.08		1.82	.22		.62	T.		T.			.17		T.				T.	T.	T.		5.49
Worthington	Des Moines	1.05									.30		.20	1.35		.11	T.				T.	1.30										4.31
Zumbrota	Mississippi	1.40										1.07		1.15	.90		1.25								T.								5.77
South Dakota.																																	
Milbank	Minnesota													.32	.38	.04																	0.74
Wisconsin.																																	
Antigo	Wisconsin	T.									T.	1.74	T.	1.20	.24		.30								.10								3.58
Barron	Chippewa	1.90										.18		*	1.80		*	.40							T.			.20			T.		4.48
Beloit	Rock	1.78						.01				.08	.22	.02			.50						20						.70				3.51
Brodhead	...do	.97						.18				.36		.27	.15		1.00						.46		T.				.16				3.55
Burnett	...do	.65	.02		T.	.03					T.	.19		.30	.09		.71					T.	.60			.08			.06				2.73
Delavan	...do	.36				.02		.24		.02		.42	.01	.33	.06		.76						.54		.01				.18				2.95
Dodgeville	...do	.48	.10					.07	.04	.01		.14	.01	.34	.17		.97					.08	.90		.02	.06			.08				3.47
Downing	Chippewa	1.20										.24		2.20	.12		.80											T.		T.			4.56
Eau Claire	...do	1.00		.05								.85		2.06	.40		1.02							T.	.04			T.		T.			5.42
Ellsworth	Mississippi																																
Gliddon	Chippewa																																
Grand Rapids	Wisconsin	.30	.19			T.						.12	1.10		1.14	.01	.32	.48					21	T.		.24							4.11
Grantsburg	St. Croix	.70												*	1.60		1.20								T.					T.			3.50
Hancock	Wisconsin	.30				T.						.80		.72	.07		.35						.40					T.					2.64
Hatfield	Black	.77										1.30		1.49	.05		.64						.05			.13							4.43
Hayward	St. Croix	1.37		T.								T.		*	1.60		1.00			T.				.10	*			.35					4.42
Hillsboro	Wisconsin	.43	.04		T.	T.		.16				1.32		.67	.24		.50		T.				.80		.15				.09				4.40
Koepenick	Wisconsin	.25	.08								*	.73		1.40	.30		.80		T.						.20								3.76
La Crosse	Mississippi	1.25				T.		.28			T.	1.90	.20	.91	.07	.16	.44		T.		T.		.50	T.	.05				.04				5.80
Lake Mills	Rock	1.12	.02					T.			.04	.54	T.	.08	.12		.82	T.		T.		.06	.35		T.				.08				3.23
Lancaster	Mississippi	1.00						.28				.22		.79	.32	T.	.85					.03	.07		.04				.02				3.62
Long Lake	Wisconsin	1.55	.11									.94	T.	1.49	.31		.58	.02	.04	.05		T.			.09	T.			.02		T.		5.20
Madison	Rock	.31			T.	.01		T.			T.	.25	.06	.14	.18		.69	T.	T.			.04	.43		.02				.09				2.22
Mather	Wisconsin	.44	.50									.08	.93	.82	.55		.46						.31			.05							4.14
Mauston	...do	.73	.05									1.10		.85	.21		.75						.45						.30				4.44
Meadow Valley	...do	.62										1.19		1.13	.15		.45						.20										3.74
Medford	Black	.65										1.85	.10		1.85		*	.60						.05	T.								5.10
Merrill	Wisconsin	1.00	.05									1.07		1.32	.83		1.50		T.			.02			.10								5.89
Minocqua	...do	1.90					T.				T.		2.10	.47			.80			T.										T.			5.27
Mondovi	Mississippi	1.00	.10									.93		1.01	.60		.95	T.	T.						T.			T.		T.			4.59
Mt. Horeb	Rock	.60	.15									.32		.30			.92						.40	T.					.08				2.77
Muscoda	Wisconsin	.60	.12						T.			.06	.21	.55	.20	.10	.48	.10				.17	.28	.12		.15			.32				3.46
Neillsville	Black	.63	.30									1.39		1.30	.33		.80																4.75
New Richmond	St. Croix	1.10	.07									.10		.60	1.10		.80							T.	T.	T.	T.						3.77
Osceola	...do	2.05								.03	.02		.40	.88			.80							T.	T.	T.		.20		.07			4.45
Portage	Wisconsin											.25		.30	.08	.08	.80						.60		.05			.10					2.26
Prairie du Chien	Mississippi	1.21			T.	T.		.11	T.		T.	1.21		.84		T.	.27			T.		.11	.60		.07				.22				4.64
Prentice	Chippewa	1.54									.21	.74		1.12	.41		.45											.05					4.52
Rhinelander	Wisconsin	1.13	.03									1.26	.04	1.41	.35		.43	.50	T.	.03					.14								5.32
Sauk City	...do											.65		*	*	*	.91						.50		.40				.25				2.71
Shullsburg	Mississippi	.94						.14	.15		T.	.41		.42	.24		1.34						.58		.17				.22				4.61
Solon Springs	St. Croix	.60											T.	*	1.20		1.00					T.	T.										2.80
Spooner	...do	1.90												.59	.69		.54					T.						.06					3.78
Stanley	Chippewa	1.03										1.33		1.71	.15		.75								.15				T.				5.12
Stephens Point	Wisconsin																																
Valley Junction	...do	.94						T.	.19			1.19		1.17	.22		.50						.58		T.	.23		.17					5.19
Viroqua	Mississippi	.30	.03		T.	T.		.12	T.		T.	1.00		.60	.07		.56					.26	.56		.06				.19		T.		3.75
Vudesare	Wisconsin	1.33	T.				T.	T.				.90		1.53	.08		.67	.08	.03	T.		T.	T.		.07		T.						4.69
Watertown	Rock		.30		T.		.04					.04		.40	.30	.12	.09	.68	.14			.14				.12			.10				2.47
Waukesha (1)	Fox	.54						.01				.27			.32			.64		T.		.01	.35			.05			T.				2.19
Waukesha (2)	...do	.65						.07			.02	.46		.34	.05		.85						.40						.17				3.01
Wausau	Wisconsin	.27									T.	.70	.07	.72			.59		T.						.07								2.42
Weyerhaeuser	Chippewa	1.89			.01						.01	.23		.60	.50		*	.66						T.	.05				.08		.03		4.06
Whitehall	Mississippi	1.00	.12									1.20		1.65	.23		.80								.30								5.30
Iowa.																																	
Albia	Des Moines	.15	.01					T.	1.08	T.				.20	.70	.20		.89					.85	.05		.05			.33	T.	T.		4.51
Algona	...do	1.50										1.29	T.	2.25	.28	.02	.70					.10	.80	T.	.07			T.	1.03	T.	T.		8.04
Amana	Iowa	.19						.55	.05			.10	.05	.75	.36		.90	T.					.64		.12				.43				4.14
Ames	Skunk	.74						.47			T.		.07	2.00	.04	.05	.10					.30	T.						.37	T.	.02		4.16
Baxter	...do	.27						.75	.21		.01	.37	.31	.88	.05	.17	.30						.31		T.		.02		.56		.02		4.23
Belle Plaine	Iowa	.52						.34			.04	.10	.15	.70	.14		.68						.45		.11				.45				3.68
Bloomfield	Mississippi																																
Bonaparte	Des Moines	.43						.62	.10					.11		.53		1.15					.75						.15				3.84
Boone	...do	2.20	T.					.04	.07			.36	.12	2.50	.60		.78						.60	T.					.40				7.67
Britt	Iowa	1.23						.03				1.44	.06	2.54	T.	.07	.80					.21	.80		T.		T.	.05	.21	.05	.06		7.55
Buckingham	Cedar	.16						.40				.37	.84		.24		.40						.07						.35				2.83
Burlington	Mississippi	1.35	.06						.77				.60	.06	.08		.50					T.	.70	.04					.03	.35			4.53
Carroll	Raccoon									1.00			2.80	1.95		.30						.30	.10					.58			.23		7.26
Cedar Rapids	Cedar	.20						.44				.09	.68	.21		.44	T.	T.			T.	.22	.12		.12				.30	T.			2.82
Charles City	...do	.41						.19				1.56	.44	1.33	.24	.49	.11				.18	.50	.43	T.	.06			.08	.04				6.06
Clear Lake	...do	.20						.50				1.42		2.05			.30					.05	.60							.25	.50		5.87
Clinton	Mississippi							.65			.01	.22		.30	.20		1.11						.81		.01				.27				3.58
Columbus Jct	Iowa	.67	.05					1.20						.05		.38	T.	1.00	T.				1.00		T.				.40	.01			4.76
Davenport	Mississippi	.15						1.25	.01	T.		.17	.14	T.	.16	.06	.87					.27	.57		.06				.21				3.92
Decorah	...do	1.25						.02			T.	2.35	.35	1.40	.32		.68					.30	.94						.30		T.		7.91
Delaware	...do	.82						.28				.16		.83			.85						.08		.19				.33				3.54
Des Moines	Des Moines	.03						.49		T.	T.	.02	.85	.83	.03		2.20					.09	.17	T.	T.			T.	.78	T.	T.		3.71
De Soto	Raccoon	.59						.33				.31	.10	1.29	.03	T.	.58						.29	T.		T.	T.		.73		.02		4.27
Dows	Iowa	.96						.50				1.13		2.62			.56						.06						.21				6.04
Dubuque	Mississippi	.15						.15				.16	.29	.19	.16	.15	1.04					.01	.32		.16				.16				2.94
Earlham	Raccoon	.50						.89			T.	.36	.20	1.82	.04	.14	.61						.31	.10					.90				5.87
Elkader	Mississippi	1.21						.15				.79	.67		.14							T.	1.17		.14				.24				4.51
Elma	Wapsipinicon	1.20						.10			T.	1.40		1.47	.05	T.	.60					.05	1.14		T.			.02					6.03
Estherville	Des Moines	1.05										.60	T.	.20	.60		.30	.10					.30				.20	.05			.06		3.46
Fairfield	Skunk	.23						1.65	.07			T.	.12	.17	.33	T.	1.00						.85	T.					.30	T.			4.72
Fayette	Mississippi	.48						.25			T.	.60	.10	.80	.40	.10	.58						.48		.17			T.	.40				4.36
Forest City	Cedar	1.55	.14									1.10		1.12	1.90		.60					.05	.65					.10					7.21
Fort Dodge	Des Moines	.88	.05						.16			1.20	.40	2.20	1.35		.30					T.	.60	T.	T.						T.		7.14
Ft. Madison	Mississippi	.25					2.25					.30				T.	.55						.85						.08				4.28
Gilman	Iowa							.65	.49		.02	.41	.23	.53	.32	.20	.43						.26	T.					.43				3.97
Grand Meadow	Mississippi	.91	T.					.09			T.	1.03		.68	.18		.45					.10	.60		.06				.34				4.44
Greene	Cedar	1.37						.25				1.83		2.20	.15		.67						.69		.08				.30				7.54

TABLE 2.—*Daily precipitation for November, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Iowa—Cont'd.																																	
Grinnell	Iowa							1.58			.12	.11	.22	.56	.34	T.	.72						.15		T.				.44	T.	.04		4.28
Grundy Center	Cedar	.55						1.90				.66		1.20	.37	.40	T.	T.					.20						.50				5.78
Guthrie Center	Raccoon	.75						.22			T.	.73	.10	3.68	.18	.20	.48						.49	.04	.01				.89	T.	.01		7.78
Hampton	Cedar							.35		.02	1.15	.40	1.50	.83			.95				.03	.85	.05					.58		.03			6.74
Humboldt	Des Moines	3.44						.10				1.96		2.68	.68		.73						.70	1.07							.12		11.48
Independence	Wapsipinicon							.28				.33		.58	.23	T.							.45	.20									2.07
Indianola	Des Moines	.37						1.12	.01		T.	.56	.46	.58	.05	.11	.47					T.	.52			T.			.74				5.09
Iowa City	Iowa	.82	.08						.67		.03	T.	.33	.58	.31		1.12						.54	.05		T.			.30	.05			4.88
Iowa Falls	...do	.98	.04						.54		T.	.61	.33	1.30	.52		.56	T.				T.	.40	T.		.02			.40	T.			5.70
Jefferson	Raccoon	1.07						T.			.50	.05	1.00	2.71		.10	.10						.60	T.					T.	T.	T.		6.13
Keokuk	Mississippi	.35						1.33				.60	.01		.03	.20	.74					.40	.31		T.				T.				3.97
Keosauqua	Des Moines	.72	.03						.37					.15	.27		1.00						.55	.05		.02			T.	.12			3.28
Knoxville	...do							2.10	.18	T.	T.	.15	.20	.47		T.	1.05						.70				.04		.73	T.	.05		5.67
Lacona	...do							1.20				.39	.20	.30		.30						1.00	.53		.25		.10		.03	.33	.05		4.59
Le Claire	Mississippi	.71	.26						1.08			.03	.18	.19	.03	.07	.90	.02					.95	.20	T.	.14			.24	.10			5.10
Marshalltown	Iowa	.88	.02	.01					.43		T.	T.	.33	1.05	.28		.38						.45	T.	T.		T.		.45		.03		4.31
Mason City	Cedar	1.01						.25				1.56		2.33			.68					.21	.64						.05		T.		6.73
Mt. Pleasant	Skunk	.40						2.05	.13			T.	T.	.10	.40		.98						.66		.03				.20	T.			4.95
Muscatine	Mississippi	1.09	.20						1.54				.24	.08	.20		1.08						.64	.07		T.			.34	.05			5.53
New Hampton	Wapsipinicon	1.38						.05			T.	2.22		1.54			.77						.60		.20				.40				7.16
Newton	Skunk							.40	.36			.60		.86	.15		.75						.18										3.30
Northwood	Cedar	1.20										1.55		2.50	.52		.80						.80							T.	.03		7.40
Olin	Wapsipinicon																																
Osage	Cedar	1.10						.10				1.56		2.05		T.	.60	.26				.18	1.20	.46									7.51
Oskaloosa	Des Moines	.03						2.00				.15		.13		.80						T.	.57		T.			.30	.03				4.01
Pella	...do	.18						2.18	.05	T.	T.	.15	T.	.73	.13	T.	.73						.73		T.				.60		.02		5.50
Perry	Raccoon	.70						.32				.44	*	2.75	T.	*	.70						.06		.04			T.	.34	T.	T.		5.35
Plover	Des Moines	1.15										1.50		1.10	.90	.10	1.30					.20	.80	.15	T.			T.		.08			7.28
Pocahontas	...do	1.71							.11			1.25	T.	1.80	.60	T.	1.00					.40		.05						T.	T.		6.92
Ridgeway	Mississippi	1.81						.12				2.05		1.75	.63	.12	.40					.16	2.10			.05			.23		.08		9.50
Rockwell City	Raccoon	1.00							1.00		1.10		3.50	.40		.60							.80						.50				8.90
Sac City	...do	1.40						T.				1.41	T.	1.98	.94	T.	.50						.50	.02			.35	T.	.12	.02	T.		7.24
St. Charles	Des Moines	.30						.86			T.		.45	1.17	.11	.10	.36						.80	.11					.86		.06		5.18
Sigourney	Skunk	.25						.95	.60			.24	.05	.75	.16		.97						.80		.02				.31	.20	T.		5.30
Stockport	...do	.33						.50	.63			T.	.03	.16	.17	.04	.85					T.	.63		.02				.11	.04	T.		3.51
Storm Lake	Raccoon	.88										1.19		1.05	T.		.40						.33	.05				.01					3.91
Tipton	Cedar	.32						.49				.27	*	.34	.38		1.41					*	.79		.23				.35				4.58
Toledo	Iowa	.10						.70	.50			.40		.75	.25	T.	.65						.10		.12				.50				4.07
Wapello	Iowa	.50						.25	.28	T.		.09	.04	.03	.13		.86						.86		T.				.25				3.29
Washington	Skunk	.70	.03					1.98				.02	.13	.19	.98		1.05				*	.72							.24				6.04
Waterloo	Cedar	.06						.18		T.	T.	.35		.84	.26	T.	.46						.36		.13				.42				3.06
Waukee	Raccoon	.44						.17		T.	T.	.20	.54	1.31			.30	.39			T.		.25	T.	.06	.01			.82	.01	.01		4.51
Waverly	Cedar	.66						.43			.04	2.15		1.30	.10	.22	.32						.42		.14				.53				6.31
Webster City	Des Moines	1.55						.37				1.36	T.	2.23	.25	T.	.10		.10				.60	T.	T.				.30	T.	T.		6.86
West Bend	...do	1.28									T.	1.18			*	2.64	.45					.05	.50	.03		T.	.08		T.	.02		6.23
Whitten	Iowa	.93						.36				.19	.25	1.25		T.	T.								T.			1.50		T.			4.48
Wilton Junction	Cedar	.96						.90				.33	.18	.23		1.20						.60	T.					23					4.63
Winterset	Des Moines	.34						.60			T.	.65	.24	1.00		.22	.34						.30					1.17		T.			4.26
Zearing	Iowa	.65						.18				1.52		1.85		.10						.25						.72					5.27
Missouri.																																	
Darksville	Chariton																																
Gorin	Mississippi	.04						.34				.17	.09	.15		1.28							.64						.29		T.		3.00
Hannibal	...do	.32						.55				.28	T.		.05	.76	.28					.30	.18		T.			T.	T.	T.		2.72
Louisiana	...do	.40						.10	.80		.60	.25		.27		1.00							.35							T.			3.77
Mexico	...do	1.24					*	.01	1.55	*	.01	*	1.06	.01	.20		1.43				*	.01	.21	.05		T.			T.	.01	.01		5.80
Steffenville	Mississippi	.85						.30	.35			.25	T.		.35		.65					T.	.50	T.	T.				T.	T.	T.		3.25
Sublett	Chariton							T.							T.	2.00																	2.00
Warrenton	Mississippi																																
Indiana.																																	
Collegeville	Iroquois	.40		.20					T.	1.05			.25		.20		1.10	T.				.10	.80					T.	.10				4.20
Knox	Kankakee	.25	.11					T.	.81				.20	.12	.17	.02	1.41	T.				.03	1.28			T.		T.	.04				4.44
Laporte	...do	.38	.03					.02				T.	.01		.13		.48	.04					1.79							.04			3.92
Plymouth	...do	.32	.09					T.	.49		T.		.12		.18	.07	.88	T.				.06	1.08			T.			.03				3.32
Illinois.																																	
Aledo	Mississippi	1.22	.05					.05	.81			.16	.03		.22		.73						1.31		.02				.19				4.79
Alexander	Illinois	.44						.37	.60			.11	1.34		.05		1.12					.01	.50		T.					T.			4.54
Antioch	...do	.30	.23					T.													1.20		.60			.90							3.23
Ashton	Mississippi																																
Astoria	Illinois	1.18						.02	.30			.03	.11		.15		1.05					T.	1.35		T.				T.				4.19
Aurora	...do	.22	.30					.19	.67		.02		.27	.43			1.13						.87		T.				.23				4.33
Beardstown	...do																																
Bement	Mississippi	.47	.03										.65		.25		1.10						.48										2.98
Benton	...do	.05							1.30	.10					.70	.25							.70							.20			3.30
Bloomington	Illinois	.73						.04	.37			.44	.05		.10		1.01						1.54		T.				T.				4.28
Cairo	Mississippi	T.					.01		.41	.01					.63	.47	.47					T.	.58										2.58
Cambridge	...do																																
Carlinville	Illinois	.66						.03	.72			T.	1.27		.23		.61					T.	.24		T.								3.76
Carlyle	Mississippi	.35						1.80	.70				.90		.40		.75						1.10										6.00
Chester	...do	.36							.98					.01	.04	.47	.73						.40	.86						.01			3.76
Chicago	Illinois	.53						.55	.14		T.	.12	.05	.02	.05	T.	.96	T.				.16	1.15		.01				.10				3.84
Coatsburg	Mississippi	.57						.24	.18			T.	.25		T.		1.25						1.05						T.				3.54
Cobden	...do	T.							.83						.80	.40	1.43						.85										4.31
Colchester	Illinois																																
Dakota	...do	1.04	.03					.42	.02		.02	.27	.05	.23	.03		.96					.03	.44		.03	T.			.20				3.77
Decatur	...do	.49						.02	.13			.90	.15		.15		1.01					T.	.28		T.								3.13
Dixon	Mississippi	.11						.35		.08	.14	.07	.12	.07		.80	.03					.75							.07				2.59
Du Quoin	...do	.07								.82			.04		.34	.60	.16						1.08							.02			3.13
Dwight	Illinois	.36	.02					.16	.48			T.	.05	.10	.08		1.25	T.				T.	1.65		.06				.03				4.24
Galva	...do	.44	.01					1.97	.26		.02	.61	.02	.05	.05		.74						1.08	T.					.14				5.39
Grafton	Mississippi	.40	.12					.04	1.12	.22			3.10	.25	.12		.84	.08					.45										6.74
Greenville	...do	.42						.54	.57				1.33		.06	.10	.72					.04	1.31										5.09
Griggsville	Illinois	.45						T.			.50	.30			.20		1.35						.50		T.					T.			3.30
Halfway	Mississippi	T.							.97	.06					.53	.30	.95						.70										3.51
Havana	Illinois	.12	.12					.46				.35			.13		1.40						1.03		T.								3.61
Henry	...do	.89						.22	.70		.02	.21	.18	.05	.05		1.19						1.03		T.				.09	.03			4.66
Hillsboro	Mississippi	.52						1.10	.42				2.45		.32		.90					T.	.52										6.23
Joliet	Illinois	.59						1.25	.10	T.	.02	.18	T.	.15	.03	.05	.83	T.				.49	.76		.04				.06				4.55
Kishwaukee	Mississippi	1.44						.33			.06	.23	.01	.19	.04		.87					T.	.58		.13				.23				4.11
Knoxville	Illinois	.88						2.25				.50	.10		.10		.81						.70						.18				5.52
La Grange	...do	.44						.20	.60				.16	.14			1.17						1.16						.18				4.05
La Harpe	...do	.85						1.10				.26	.10	T.	.09	T.	.51						.61						.09				3.61
Lanark	Mississippi	.86						.37	.16			.44	.02	.24	.13		1.05					.01	.57		.22				.30				4.37
La Salle	Illinois	.28						.77	.05	T.	T.	.45	.02		.03	.08	1.02	T.				.18	.75		.10				.09				3.82
Lincoln	...do	.63						.25	.36			.95	T.		.07		1.05					T.	.91		T.								4.22

TABLE 2.—*Daily precipitation for November, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Illinois—Cont'd.																																	
Loami	Illinois	.64						.20	.41				1.40		.11		.80						.18		T.				T.	T.			4.14
Martinton	do	.40						1.83		T.		.13	.08		.13	1.13	.15	T.				1.18	.50						T.				5.53
Mascoutah	Mississippi	.45						.39	.82				.98		.55	.05	.59					T.	.72							.01			4.56
Minonk	Illinois	.39						.78	T.	T.		.07	.22	.04	.08	T.	1.08	T.				T.	1.17		T.			T.	T.				3.83
Monmouth	Mississippi	.85							2.35			.52	.05	.05	.15		.63						1.08						.30				5.98
Morrison	do	1.02	T.					.25	.44			.30	.02	.27	.10		.91			T.		T.	.90		.04				.25				4.50
Morrisonville	Illinois	.29						.26	.28			T.	.97		.14		.68						.12										2.74
Mt. Vernon	Mississippi								.32	.36			.17	.27		.38	.18	.60					T.	.95									3.23
Oregon	do	1.51	T.					.30	.30			.20		T.			1.00						.65		.20				.91				5.07
Ottawa	Illinois	.35						.23	.50			.04		.14								1.14			.05	.02			.10				2.57
Pana	Mississippi	.47						.89	.18	.02			1.05	.03	.33	.02	.85				.03	T.	.61	T.									4.48
Peoria	Illinois	.50						1.45	.02	T.	T.	.81	.01		.08	.56	.70	T.				.50	.85		.01				.04				5.53
Pontiac	do	.37						.10	.39			.02	T.	.07	.08		1.03					.01	1.85			T.			.02	.06			4.00
Riley	Mississippi	.33	.25					.20	.37		T.	.31	.29	.18	.04		.88					.01	.86						.19				3.91
Rockford	do	1.28	.28						.25		T.	.26	.12	.17			.89	.01		T.	.03	.46	.20	T.	.02				.15	.03			4.15
Rushville	Illinois	.56						.47				.13	.13		.36	T.						.92											2.57
St. Charles	do	.40	.15					.20	1.40		.04	.09	.39	.10	.11		1.28	T.					.95			.05			.11				5.27
Springfield	Illinois	.59						.37	T.			1.13	.15		.07	.93	.25					.20	.01		T.				T.				3.70
Staunton	Mississippi							.30	.90				2.75		.28		.66						.60										5.49
Streator	Illinois		.15						.74		.01		.25	.05	.05		.85	.15				T.	1.33	.06		.06				.03			3.73
Sullivan	Mississippi	.43						T.	.10				.61		.27		.95					T.	.98										3.34
Sycamore	do	.35	.35						1.22	T.	.05	.12	.45	.23	.12	.02	.90						1.18	.08		.10		.05		.20			5.42
Tilden	do	.34						.58	.70	.06			1.96		.27		.72					.02	.90							.01			5.56
Tiskilwa	Illinois	.21	.06					.47	.41		T.	.24	.35	.06	.13		.64	T.					1.07		T.					.03			3.67
Walnut	Mississippi	.89						.67	.90			.25	T.	.10	.01		.97					T.	1.11		.07				.27				5.24
Warsaw	do	1.60						.93								1.53						.67											4.73
White Hall	Illinois	.44						.28	.80			.80	1.62	.01	.16		1.33						.41		T.									5.85
Windsor	Mississippi	.74						.10	.03				.75	.02	.30		.83					.03	.93											3.73
Winnebago	do	1.17						.28	.05		T.	.20	T.	.18	T.		1.00					.05	.75		.12				.20				4.00
Yorkville	Illinois	.30	.40					.38	1.00		T.	.01	.33	.10	.10		1.00						1.00						.20				4.82
Zion	Mississippi	.98						.81				.40	.02	.26	.21		1.21					.55			.20			.28					4.92

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 5, Upper Mississippi Valley.*

Date.	North Dakota.										Minnesota.																	
	Bottineau.‡‡		Devils Lake.		Lisbon.‡‡		Minot.‡‡		Pembina.‡‡		Collegeville.		Crookston.‡‡		Grand Meadow.		Montevideo.‡‡		Moorhead.		New Ulm.‡‡		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	55	28	58	29	64	25	60	25	46	17	45	36	53	25	65	40	55	37	59	25	45	29	49	34	47	39	44	33
2	57	16	55	25	58	25	63	24	49	19	53	33	50	30	54	35	61	32	54	30	56	37	52	36	53	36	54	30
3	53	20	61	36	66	30	65	30	51	22	62	39	60	35	65	39	82	40	64	37	63	36	58	38	63	43	54	38
4	60	29	61	34	67	32	59	40	50	26	60	38	60	43	66	36	78	37	61	35	74	34	59	26	57	38	56	31
5	59	34	57	39	63	32	65	36	46	25	57	39	60	39	65	37	64	30	61	30	62	36	58	24	59	41	57	29
6	60	35	62	36	63	33	55	35	39	22	58	35	63	37	69	40	77	40	64	39	71	38	59	42	60	42	56	35
7	58	20	42	20	50	35	48	21	46	20	57	40	45	39	60	37	54	38	52	24	56	34	46	20	58	36	54	39
8	44	18	44	14	48	9	49	13	35	30	44	24	43	20	45	26	44	18	45	16	48	25	44	20	46	29	43	27
9	46	22	49	20	51	13	54	18	30	46	44	30	56	25	48	27	53	32	52	33	58	25	49	38	53	32	43	29
10	45	30	57	31	70	35	41	28	29	29	67	44	66	40	62	46	75	31	70	36	48	38	65	46	65	53	63	43
11	51	26	31	21	39	22	30	28	48	10	64	31	40	35	62	30	51	33	40	28	47	31	62	32	58	38	61	34
12	30	4	21	8	31	25	14	7	50	20	39	24	30	29	39	27	35	25	31	19	38	24	38	26	41	32	37	26
13	36	6	18	11	20	15	16	8	32	23	34	26	26	20	37	32	35	28	24	18	49	26	38	30	40	33	30	24
14	20	9	16	3	20	15	14	9	12	10	46	17	18	15	44	26	24	24	21	11	32	31	33	21	58	20	30	20
15	15	−5	19	−3	18	−7	20	−10	10	0	24	11	15	0	35	17	24	5	12	−2	28	15	25	12	31	17	23	12
16	18	10	23	12	25	−3	24	8	26	5	28	20	20	5	31	24	21	15	22	10	30	15	26	20	30	24	27	18
17	18	8	23	12	27	9	26	8	22	10	28	15	23	10	26	10	18	10	22	11	26	16	23	11	25	10	27	14
18	20	10	36	12	26	7	49	15	18	5	22	11	24	8	30	3	30	4	20	6	31	7	22	14	29	7	22	14
19	32	18	50	25	45	9	52	22	26	0	38	14	40	17	41	19	44	15	41	19	38	9	35	7	41	16	36	16
20	40	11	25	−5	31	24	22	11	28	5	46	25	23	21	45	32	46	35	32	3	43	17	35	22	47	25	37	29
21	12	−15	12	−11	17	9	16	−5	32	10	29	3	11	−3	39	20	22	3	8	−2	39	9	22	11	26	18	23	9
22	10	5	12	−1	24	9	20	6	38	8	29	12	25	2	31	18	25	11	15	−2	41	10	23	10	33	24	19	3
23	16	2	30	9	27	15	38	10	46	12	29	20	33	10	25	4	35	15	32	14	37	16	27	12	32	22	25	13
24	24	14	47	24	43	.....	59	16	41	18	41	25	37	25	35	25	45	25	36	26	41	20	35	25	41	31	33	20
25	34	5	24	10	33	.....	15	6	54	12	36	28	35	24	47	28	44	28	32	24	46	23	43	30	38	34	33	29
26	15	4	18	14	29	.....	20	6	40	22	52	32	35	20	58	35	53	35	35	21	57	24	48	34	60	38	41	29
27	18	10	24	7	26	20	32	12	38	14	55	28	20	16	61	40	28	28	23	19	38	38	52	24	61	30	40	23
28	20	−1	35	6	26	1	46	6	32	12	35	18	20	−2	40	25	24	18	19	7	31	23	24	8	35	24	28	8
29	40	14	54	28	36	11	61	20	36	10	38	23	35	8	34	24	44	16	32	14	45	17	43	12	39	20	46	29
30	44	24	52	30	44	23	61	33	40	10	44	32	35	20	42	28	52	39	38	32	46	26	46	12	43	33	45	36
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	35.0	13.5	37.2	16.8	39.6	17.5	39.8	16.2	37.7	15.7	43.5	25.8	36.7	20.1	46.7	27.7	44.8	24.9	37.2	19.4	45.5	24.3	41.3	23.2	45.6	29.5	39.6	24.4

Date.	Wisconsin.														Iowa.													
	Delavan.		Eau Claire.		La Crosse.		Madison.		Mauston.		Spooner.		Wausaw.		Algona.		Cedar Rapids.‡‡		Charles City.		Davenport.		Des Moines.		Dubuque.		Keokuk.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	63	49	60	47	59	45	59	44	64	55	45	40	62	48	55	38	60	58	59	41	61	49	52	47	61	47	61	49
2	59	49	55	45	54	39	54	42	58	40	50	32	54	36	55	35	57	41	54	38	57	42	60	44	55	41	61	44
3	68	47	62	40	63	40	62	41	60	42	59	39	59	36	66	40	67	41	65	40	69	43	72	44	66	43	70	45
4	62	33	53	30	59	34	57	43	55	33	52	33	57	33	71	36	68	38	69	34	69	42	75	43	65	37	72	46
5	58	37	63	34	62	41	59	44	60	39	58	31	57	35	66	36	70	38	65	40	71	50	75	47	64	43	79	51
6	61	42	60	40	64	40	61	43	60	35	61	37	56	39	71	43	71	44	68	43	71	45	76	48	67	45	74	48
7	63	44	59	39	56	43	59	45	58	37	57	41	59	40	60	43	65	44	54	40	62	51	65	45	62	49	78	56
8	57	36	51	27	49	33	52	34	56	30	43	24	58	30	47	25	49	40	50	32	58	37	51	35	54	36	61	46
9	47	29	50	26	51	30	49	33	50	23	47	30	47	29	49	32	55	32	50	30	56	33	54	40	55	30	60	38
10	62	42	65	47	67	50	62	44	65	44	63	41	57	39	66	48	69	33	64	50	69	51	67	54	66	48	71	50
11	65	58	66	37	64	38	66	42	65	46	63	36	61	54	62	38	74	54	58	35	69	41	70	43	70	40	70	52
12	59	33	44	29	45	30	42	35	46	28	39	32	54	34	42	26	57	34	44	28	46	37	44	34	45	34	52	39
13	67	40	41	32	52	36	68	41	64	38	36	32	52	33	37	32	72	33	58	35	72	46	63	37	71	40	74	45
14	57	40	58	30	63	24	63	28	68	38	57	26	63	52	53	24	61	56	60	24	66	31	64	28	63	27	65	41
15	40	24	34	18	35	21	34	24	38	11	29	15	55	20	30	15	41	25	34	20	44	26	34	24	39	25	44	27
16	55	31	33	27	34	27	45	30	34	28	30	20	34	26	30	22	41	24	33	24	49	31	36	22	44	31	49	32
17	33	26	32	18	29	16	32	22	32	22	24	14	29	24	25	10	29	25	24	9	31	21	25	14	31	20	32	22
18	32	17	25	5	34	11	34	17	29	12	25	4	27	5	35	4	39	15	35	8	40	17	44	14	38	16	42	17
19	50	31	38	17	45	25	47	29	46	24	34	14	36	23	42	22	53	15	44	25	54	36	54	33	51	32	59	39
20	58	43	50	31	54	37	56	42	56	39	48	29	49	33	45	32	62	33	54	32	62	47	63	37	61	42	64	48
21	54	31	40	25	37	28	49	28	54	30	30	18	47	26	33	14	39	33	32	24	56	34	37	28	42	31	59	39
22	33	22	34	23	31	14	30	21	32	24	28	18	31	23	27	11	32	29	29	5	34	23	37	20	32	19	44	31
23	33	8	27	19	33	11	32	15	28	−2	27	20	27	17	33	8	33	15	30	4	36	21	36	20	34	13	36	25
24	37	28	36	22	40	33	36	29	37	28	36	22	33	25	39	28	40	19	37	27	42	33	54	32	40	32	47	33
25	51	34	42	34	51	36	47	35	46	33	38	33	36	32	43	23	50	29	47	25	54	34	62	31	51	34	60	35
26	59	31	52	33	60	36	56	34	54	25	48	35	46	34	60	38	65	29	63	38	63	40	70	47	61	38	68	46
27	65	45	62	49	63	43	64	49	65	50	58	41	61	44	61	32	69	44	62	34	70	54	65	37	67	55	71	59
28	58	36	52	29	43	29	59	32	62	35	42	21	60	35	35	25	43	37	42	28	60	41	43	33	63	34	65	40
29	46	31	31	19	31	25	43	31	40	22	40	18	59	21	38	20	41	32	34	26	43	35	42	34	45	30	48	40
30	50	26	40	28	42	26	49	28	46	23	39	29	36	22	43	34	50	32	44	33	53	32	46	39	48	31	48	41
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	53.4	34.8	47.2	30.0	49.0	31.4	50.9	34.2	50.9	31.1	43.5	27.5	48.1	31.6	47.3	27.8	54.1	34.1	48.7	29.1	56.2	37.4	54.5	35.1	53.7	34.8	59.5	40.8

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 5*—Continued.

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.													
					Cairo.		Greenville.		La Salle.		Mt. Vernon.		Peoria.		Springfield.		Winnebago.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	63	50	66	48	69	57	61	52	59	49	71	60	60	49	59	50	60	51
2	65	42	60	44	72	51	67	47	58	44	71	49	60	43	63	46	52	40
3	73	40	60	35	80	48	72	42	68	40	80	39	69	39	69	42	62	36
4	76	42	55	43	79	51	75	48	67	40	78	41	69	39	68	49	65	37
5	80	52	60	39	82	56	75	51	72	43	80	44	72	47	72	47	64	41
6	74	46	65	41	68	56	78	51	70	43	81	46	74	45	74	50	67	40
7	78	57	64	43	78	60	76	60	65	51	83	49	73	56	75	57	63	41
8	58	45	62	40	66	59	65	49	59	36	64	52	58	37	60	44	58	37
9	61	43	54	30	60	52	58	48	52	34	60	47	55	38	56	44	47	28
10	73	54	65	43	75	54	70	53	67	48	76	54	68	51	70	52	66	41
11	70	50	72	57	74	61	73	60	68	48	74	55	68	49	70	60	67	55
12	58	44	62	44	74	59	65	55	49	40	65	65	53	41	60	47	55	34
13	74	58	69	43	76	59	73	54	72	49	70	54	72	53	72	56	69	42
14	68	34	58	43	69	56	66	46	67	36	76	44	65	35	64	40	65	40
15	46	30	45	32	64	47	46	34	46	29	65	39	46	28	47	32	43	25
16	59	30	59	33	66	36	60	34	60	32	65	38	58	31	60	33	55	32
17	34	24	45	28	45	32	37	28	32	28	48	32	33	23	34	26	34	26
18	42	19	35	25	43	28	38	32	39	20	44	23	37	18	40	20	35	16
19	62	40	52	31	59	36	57	35	54	37	60	23	56	33	57	36	52	30
20	65	47	58	41	66	44	62	44	61	47	72	30	62	43	62	43	60	43
21	58	43	56	36	70	60	66	52	57	36	71	34	54	37	57	44	56	36
22	43	28	39	31	69	38	66	35	38	24	68	63	40	27	45	31	37	27
23	37	27	39	24	45	34	43	26	39	21	55	27	38	22	40	26	32	11
24	48	34	.....	.....	52	34	49	31	42	32	50	32	47	31	47	32	37	30
25	63	38	.....	.....	62	39	57	32	55	37	60	30	55	35	57	34	52	32
26	71	44	.....	.....	66	45	64	40	64	39	67	35	64	39	63	40	62	34
27	73	58	.....	.....	72	52	68	44	66	48	70	40	70	50	69	49	64	48
28	62	42	.....	.....	72	51	70	48	56	40	75	40	55	41	66	44	58	42
29	49	42	48	29	58	47	56	44	45	31	60	40	44	35	47	39	46	30
30	50	44	51	26	60	44	58	37	53	26	58	34	53	33	55	34	51	25
31																		
Means	61.1	41.6	56.0°	37.2°	66.4	48.2	62.4	43.7	56.7	37.6	67.2	42.0	57.6	38.3	59.3	41.6	54.5	35.0

Climatological Data for November, 1909.

DISTRICT No. 6, MISSOURI VALLEY.

J. WARREN SMITH, District Editor.

GENERAL SUMMARY.

The month of November was unusually warm and wet in nearly all parts of the Missouri watershed. It opened unusually warm and the highest temperatures of the month were recorded during the first decade. The temperature reached 90° in Kansas and was above 80° in all of the States, except Wyoming and Montana. Barometric depressions that came from the southwest caused heavy rain in parts of Iowa on the 1st, and in Missouri on the 7th.

An area of high pressure moved into the northern part of the district on the 7th, causing freezing weather in Montana on that date and in all but the southeastern part of the watershed on the 8th. A storm that was over North Dakota on the 10th caused unseasonably high temperatures in most sections, and, combined with another storm from the southwest, heavy rain resulted in parts of Missouri on the night of the 11th.

Another northwestern high-pressure area produced freezing weather in the northwest on the 11th and gradually overspread the district between that date and the 15th. In the mean time southwestern depressions moved across the lower part of the district and caused heavy rain or snow in Kansas and parts of Nebraska and Iowa on the 12th and 13th, and in Nebraska, Kansas, Iowa, and Missouri on the night of the 15th.

On the 17th another well-defined high-pressure area overspread the district from the northwest, causing zero temperatures in Montana and North Dakota and freezing temperature over the remaining States.

The temperature was below zero at some time during the month in all the States except Kansas and Missouri.

The precipitation was much in excess of the normal, except in North Dakota, and in most of the lower part of the watershed it was the heaviest ever recorded in November.

Very little snow fell in Missouri and only a moderate amount in Kansas. In the mountain States more of the precipitation was in the form of rain than is usual in this month, although in Colorado the snowfall was heavy, averaging 17.7 inches, with from 3 to 5 feet in the higher elevations. In South Dakota most of the precipitation was in the form of snow, while in parts of Iowa the snowfall was the heaviest ever recorded in this month.

The prevailing wind was from the northwest in North Dakota, South Dakota, and Nebraska; from the west in Wyoming, Montana, and Colorado; and from the south in Iowa, Kansas, and Missouri. The wind movement was very close to the normal.

There was more fog than usual and much more than the normal cloudiness. The percentage of possible sunshine was from 10 to 20 per cent less than the normal for the month.

The following is extracted from the reports of the section director in each State:

Wyoming.—The average temperature for the month was above the normal throughout that part of the State that is in District No. 6. The daily mean averaged from 1° to 4° above the normal. The precipitation was not very heavy, but it was above the November normal at nearly all stations. It was heavier in the mountain districts than in the plains, and although an unusual amount of precipitation was in the form of rain even at the higher elevations, the snowfall was heavy enough so that a good supply of snow accumulated in the mountains. This snow will probably be conserved until late next summer as it has fallen so early in the season. There was more than the average cloudiness during the month, and more than the usual amount of fog was reported. The sunshine averaged only about 47 per cent of the possible amount. Thunderstorms were reported at 2 stations on the 9th and at 1 station on the 24th. An aurora was observed at Echeta on the 29th. The highest temperature was 79° and the lowest −22°. The heaviest precipitation for the month was 5.39 inches, and the greatest amount in any 24 hours was 2.50 inches. The greatest monthly snowfall was 52.0 inches at the Thumb, in the Yellowstone National Park.

Montana.—The mean temperature was considerably above the normal, except over a narrow scope of country along the Canadian border and at a few high mountain stations. The warmest section was immediately east of the Continental Divide. There have been but two Novembers in the past 15 years with a materially greater precipitation. It was generally greatest in the mountain sections of the western part of the State, and the amount decreased eastward over the plains section. The precipitation all occurred in the 2 periods from the 10th to 13th and 20th to 26th. The average precipitation for the various subdrainage basins was as follows: Milk River, 0.90 inch; Marias, 0.64 inch; Sun River, 0.74 inch; Beaverhead, 1.59 inches; Madison, 1.92 inches; Gallatin, 2.49 inches; Musselshell, 1.06 inches; Yellowstone, 0.90 inch; Big Horn, 1.86 inches; Tongue, 0.90 inch; Little Missouri, 0.50 inch. There was an unusual amount of cloudiness, and the average sunshine was about 22 per cent below the normal, or about 41 per cent of the possible. The average wind velocity was 7.7 miles per hour, which is slightly less than the normal. Auroras were noticed on the 1st, 13th, and 29th. There were many reports of fog. Thunderstorms occurred on the 21st, 23d, and 24th. The highest temperature reported was 78° and the lowest −26°. The greatest monthly rainfall was 4.80 inches, and the greatest fall in 24 hours, 1.61 inches. The heaviest monthly snowfall was 41.0 inches at Jones Canyon.

North Dakota.—Generally pleasant weather prevailed throughout the district during the month, although there was a slight deficiency in the sunshine. The temperature averaged nearly 3° a day above the normal, due principally to the high day temperatures during the first decade. The second decade was the coldest, and during this period the minimum for the month was generally recorded. The precipitation was unevenly distributed, geographically, but, with the exception of the first decade, fell quite uniformly throughout the month. The average precipitation for the district was considerably below the normal and less than one-half that of the corresponding month of 1908. The wind movement during the month was nearly the average. The highest temperature was 88° and the lowest −20°. The greatest monthly precipitation was 1.04 inches. The greatest amount in any 24 hours was 1.04 inches. The greatest monthly snowfall was 10.0 inches.

South Dakota.—The mean temperature was nearly 2° below the mean for November, 1908, and 2.5° above the normal for the month. The local monthly means ranged from 40.1° in the Black Hills district to 29.0° in the upper James River Valley. The precipitation was above the normal over all parts of the State and, except in some of the southeastern counties, was nearly all in the form of snow. The precipitation was more than an inch above the normal in a number of counties in the lower James, Missouri, and Big Sioux river valleys. The averages for the principal valleys were: Missouri, 1.76 inches; James, 1.24 inches; Big Sioux, 1.45 inches; Cheyenne, 0.91 inch. There was an average of 12.5 inches of snow during the month, but it was not as a rule accompanied by high winds and, therefore, was not much drifted. The snowfall averaged greatest over the middle and lower portions of the James and Missouri river valleys, the largest amount, 25.8 inches, occurring in Yankton County. In the more elevated portions of the Black Hills district the snowfall was not so great as on the lower levels. Thawing temperatures at times reduced the depth of snow and at the close of the month there was practically none on the ground, except in some northeastern counties, and but little in the mountainous districts. Thunder was heard on the 10th in a number of southeastern counties, and near the close of the month there was an unusual amount of foggy weather. The average hourly wind velocity was 8.4 miles, and the average total movement for the month was 6,048 miles. The maximum temperature was 86° and the minimum −12°. The greatest monthly precipitation was 4.53 inches and the greatest in 24 hours 1.70 inches.

Colorado.—The month was unusually cloudy, with mild temperatures and unusually heavy snowfall. The mean precipitation was considerably in excess of any previously recorded in November, but this was probably due in part to the increased number of high-level stations. There have been several warmer Novembers but few in which there was so little severely cold weather. The mean temperature for that part of the State that is in District No. 6 was 37.9°, which is 2.3° above the normal. The average precipitation over this part of the State was 1.25 inches, or 0.64 inch above the normal. The sunshine was the least for November since instrumental records have been kept. At Denver the percentage of the possible sunshine was only 45 and was 25 per cent below the normal. The highest temperature was 85° and the lowest −6°. The greatest total precipitation was 2.41 inches, and greatest fall in 24 hours 1.00 inch. The greatest monthly snowfall was 31.0 inches.

Nebraska.—The mean temperature was decidedly above the normal throughout the State, the daily excess at most places being between 3° and 7°. The average precipitation for the State as a whole was 2.73 inches, which is the greatest amount for November on record since the year 1849. The other years with an average November precipitation exceeding 2

inches were 1852, 1855, and 1871. The precipitation in the southeastern part of the State ranged from 7 to nearly 10 inches, while the normal is about 1 inch. The precipitation and excess both materially diminished in the northern and western counties. In the valley of the Blue and the lower Missouri rivers the excess varied from 4 to 6 inches. In the Republican Valley the excess was nearly 2 inches. In the upper Missouri it was about 2.50 inches, while in the Niobrara, Loup, and upper Platte valleys the excess was about 1 inch. The cloudiness was in excess, while the number of rainy days, 6, was twice the normal number. The percentage of possible sunshine at North Platte was 60 and at Omaha 46, which is 11 per cent below the normal. The average wind velocity was 9.0 miles an hour, which is about 0.2 mile below the average for November for the past 15 years. Fog was reported on a large number of dates. An aurora was observed on the 30th. The highest temperature was 88° and the lowest −10°. The greatest monthly precipitation was 9.98 inches. The greatest amount in any 24 hours was 5.85 inches. The greatest monthly snowfall was 25.4 inches.

Iowa.—The average temperature for the State was 6.5° above the normal and was the highest for November during the past 19 years, except in 1899. The temperature was above the normal on all but 4 or 5 days of the month. The precipitation was excessive in all districts, and was well distributed throughout the month. It was the wettest November on record. The heaviest precipitation occurred between the 11th and 16th, but the amounts were heavy also on the 1st, 7th, 22d, 23d, and 28th. The amounts of snowfall over the northern counties exceeded all November records. Heavy snow fell on the 15th, 16th, 22d, and 23d and the monthly amounts ranged from 8 inches to 24.0 inches in the northern part of the State. The highest temperature was 82° and the lowest −4°. The greatest monthly precipitation was 10.33 inches and the greatest fall in 24 hours 4.08 inches. The greatest snowfall was 24.0 inches.

Kansas.—The weather for November was unusually mild, cloudy, and wet, the month having the highest mean temperature and the greatest precipitation of any November on record. The mean temperature was above the normal at all stations. The departure was the greatest in the Valley of the Kansas River, where the daily excess averaged 9°. The greatest excess in precipitation occurred in the Blue River Valley, where it ranged from 5 to 8 inches. The excess in the Kansas River Valley ranged from 8 inches in Pottawatomie County to 1 inch at its mouth. The excess in the other river valleys ranged from 2 to 6 inches. The greatest 24-hour precipitation in the Blue and Kansas river valleys was unprecedented for November. In the upper portion of the Blue River it was more than 4 inches, and in the upper portions of the Kansas River it ranged from 3 to 6 inches and occurred on the 13th. The sunshine averaged 49 per cent of the possible amount, and was 10 per cent below the normal for the month. The highest temperature was 90° and the lowest was 6°. The greatest monthly precipitation was 9.58 inches and the greatest amount in 24 hours was 6.10 inches. The heaviest snowfall was 12.5 inches.

Missouri.—The month of November was the mildest and wettest during the past two decades or more. The mean temperature was continuously above the normal during the entire month, except 3 or 4 days during the second decade and 1 or 2 during the third decade. The mean temperature in the Missouri Valley to the north of the river was 6° to 8° a day above the normal, while to the south of the river, including the northern slope of the Ozark Plateau, the excess averaged 8° to 10° a day. The mean temperature for the State was 53.6°, 9.3° above the normal and 3.5° higher than the previous high mean of November, 1902. The prevailing day temperatures were remarkably high for the season of the year. One of the most noticeable features of the month was the unusually small number of days with the temperature 32° or lower, which averaged about 5 for the State. The precipitation for the month was frequent, heavy, and general, the average for the State being the greatest in 27 years. The total precipitation in the Missouri, Charitan, and Grand river valleys was from 2.50 to 7 inches, which, on an average, is about 86 per cent above the normal. Over the Osage watershed the amounts were from 3 to over 7 inches and exceeded the normal from 1.50 to 5 inches. The snowfall was light and unimportant. Thunderstorms were quite frequent, and there was more wind than usual. The sunshine was somewhat below the normal, and the relative humidity was 6 per cent higher than the normal for November. The highest temperature was 87° and the lowest 11°. The greatest monthly rainfall was 8.49 inches, and the greatest 24-hour fall was 5.50 inches. The greatest snowfall was 2 inches.

TEMPERATURE.

The average temperature was much above the normal in most of the district. The first and third decades were generally warm, while the second decade was only moderately cool. The highest temperature recorded was 90° at Enterprise, Kans., on the 3d. The lowest temperature was −26° at Augusta, Mont., on the 14th. The lowest temperature in Missouri was 11° above zero and in Kansas 6° above. It was below zero in each of the other States.

PRECIPITATION.

The precipitation was below the normal in North Dakota and part of Montana, but was above in all other portions of the district. In much of the central and southern parts of the watershed it was the greatest ever recorded in November. The greatest monthly precipitation was 10.33 inches at Thurman, Iowa. The greatest amount in any 24 consecutive hours was 6.10 inches at Wamego, Kans., on the 13th. The heaviest snowfall for the month was 52.0 inches at the Thumb in the Yellowstone National Park.

RIVERS.

In the most of the lower part of the watershed the rivers were higher than usually recorded in November. In central and western Iowa the rivers and streams were at flood stage and overflowed the bottom lands, which was unprecedented for this month. Considerable damage was done by washouts and flooding in northeastern Kansas. Road bridges were washed away in the Valley of the Vermillion River, and damage done to railroad tracks. Transportation interests were hampered to some extent in the Blue River Valley and in Pottawatomie County, in the Kansas River Valley. At Kansas City, Mo., the Missouri River was within 3.5 feet of flood stage on the 17th, and at St. Louis the Mississippi River rose to 20.5 feet on the 20th. High water caused a suspension of work on the east land pier of the bridge at St. Louis. In Montana there was no material increase in the flow of most streams, mainly on account of the generally dry and unfrozen condition of the ground.

MISCELLANEOUS.

There was considerable interference with railroad traffic in Montana from the 24th to 27th on account of landslides caused by heavy rains and melting snow in the mountains. Some delay was caused to railroad traffic in North Dakota and South Dakota by heavy snow, and heavy rains and washouts did some damage in Kansas.

Wagon roads were very muddy and fields were rendered every unfavorable for work in parts of South Dakota, Nebraska, Iowa, Kansas, and Missouri. The rains have assured an abundant water supply for the winter, however, and have put the soil in good condition for early spring work, if the weather is favorable at that time.

Fall plowing could be carried on through most of the month. The mild and wet weather was generally favorable for winter grains, and the winter wheat and rye prospect is reported better than the average for the past 10 years in all parts of the district where these crops are raised. It is possible, however, that the top growth of the winter grains has been too rank, and that the plants are liable to be greatly damaged if unfavorable winter weather should be experienced. It is known also that a prolonged warm autumn, especially if it is extended into early winter, enables the young of the Hessian fly to become so developed as to live through even a severe winter.

A warm, wet fall tends to continue the growth of fruit trees too late and the tender shoots and partly developed buds are easily winter killed. Peach buds especially were noticeably developed at the close of the month and it is feared that severe winter weather, or any early cold spell, will be damaging.

In Montana the moderately cold spell from the 11th to 17th had the effect of retarding the grain movement from the farms to the elevators, but caused little inconvenience to railroads or stock interests.

The rains have greatly interfered with corn husking and in many places much of the corn is lying on the ground and the grain has been seriously damaged. Corn that has been put into the cribs has dried slowly in the damp weather and there is much complaint of its heating and molding.

The weather was favorable for stock interests and in the southern part of the district the pastures were green at the close of the month.

The danger of forest fires ended generally with the coming of the heavy snow. In the National Forest District No. 1, covering northern Idaho, Montana, North Dakota, Minnesota, and

Michigan, it is reported that the total cost of extinguishing fires for the past season has been a little over $15,000, as against approximately $30,000 in 1908.

The forest supervisor of the Kansas National Forest reports that on November 27 and 28 a heavy rain fell, turning into sleet the evening of November 28. It lasted 12 hours and caused a great deal of damage in the way of breaking down telephone wires and poles. Large branches of trees and in many cases trees were broken off, as a heavy wind from the north accompanied the storm.

Snow and cold weather interfered with the United States Reclamation Service work to some extent on the Milk River Project in Montana, the Belle Fourche Project in South Dakota, and the Shoshone Project in Wyoming. The irrigation season was closed on the Shoshone Project on November 13. At the Garden City Project, Kansas, the river water was available for irrigation throughout the month, but was used for that purpose on only 9 days.

The wet weather of the past summer and fall has emphasized the importance of draining farm lands, and it is estimated by the county surveyors in Union, Page, Lyon, and Clay counties, Iowa, that a total of over 800 miles of tile were laid, or preparations made for laying the same, in those counties during the month.

In Pottawattamie County, Iowa, mutual ditch drainage work just completed or under contract contemplates over 30 miles of ditches, draining 24,800 acres. Plans for other ditches 34 miles in length will be ready for contract in 1910.

Plans are being laid for the construction of a large ditch in Shelby County, Iowa, that will straighten the branch of the river running from Defiance to Harlan, a distance of 15 miles.

A river-straightening petition in Page County, Iowa, contemplates the construction of a new river channel about 40 miles in length that shall take the place of 83 miles of channel now being used by the river. The cost will be approximately $300,000, and 25,000 acres of overflowed land will be reclaimed.

TABLE 1.—*Climatological data for November, 1909. District No. 6, Missouri Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Arapahoe	Fremont			27.2		50	3†	−16	15	20	0.39		0.21	4.5	2	3	6	21	sw.	David Malloy.
Barnum	Johnson	5,500	4								0.51		0.25	5.0	3	16	9	5	w.	Thos. Freeguard.
Basin	Big Horn	3,856	10	35.2	+ 2.8	67	5	0	14	41	0.37	+ 0.24	0.37	0.0	1	10	5	15	nw.	O. J. Robertson.
Bennett	Carbon										0.81		0.18		7	18	9	3	sw.	Chas. C. Young.
Cheyenne	Laramie	6,088	38	38.6	+ 3.7	70	4	10	15	36	0.73	+ 0.32	0.37	6.1	7	6	9	15	w.	U. S. Weather Bureau.
Cheyenne Exp. Farm	do	6,000	3																	Irrigation Inves. Office.
Chugwater	do	5,282	8	38.0	+ 2.2	73	6†	9	15	47	0.50	− 0.03	0.25	5.0	4	18	11	1	w.	George Milne.
Clark	Big Horn	4,320	4	38.6		68	3	1	15	27	1.13		0.64	8.0	9	8	4	18	n.	Chas. A. C. Snow.
Crystal Lake Reservoir	Laramie	6,900		38.9[b]		68[b]	3	6[b]	14	40[b]	0.23[b]		0.23[b]	3.7[b]	1	7[b]	10[b]	3[b]	nw[b].	L. E. Jenson.
Douglas	Converse	4,793		41.8		74	4	− 1	28	41	0.37		0.15		3					Henry C. Miller.
Dubois	Fremont	6,909	3	34.0		62	3	−13	15	39	0.63		0.17	1.5	6	9	11	10	w.	Dr. F. H. Welty.
Eaton's Ranch	Sheridan	4 400	4	41.4		76	3	1	14	37	0.60		0.26	0.0	4	6	22	2	n.	F. A. Eaton.
Echeta	Crook										0.93		0.32	13.0	7	14	5	11	n.	M. R. Hunter.
Elk Mountain	Carbon		4								1.93		1.31	20.5	5					Wm. Richardson.
Encampment	do	7,322		35.2		63	3	10	17†	33	1.31		0.70	3.2	7	14	6	10	sw.	U. S. Forest Service.
Ervay	Natrona																			Frank Jameson.
Filmore	Albany	7,527	3								1.50		0.40	15.0	6					Jas. Dougherty.
Fort Laramie	Laramie	4,270	32	37.8	+ 3.1	79	3	0	16	56	1.66	+ 1.30	0.66		5	19	9	2	w.	John Hunton.
Gillette	Crook	4,546	3																	S. D. Perry.
Granite Canyon	Laramie	7,337	4	36.8		66	3	7	15	42	0.52		0.20	5.5	6	13	7	10	W.	Wm. Boyce.
Hunter's Station	Johnson	8,000	3	32.4		61	3	− 3	15	49	1.22		0.56	19.0	8	18	6	6	w.	August Hettinger.
Hyattville	Big Horn	6,632	10	37.2	+ 0.7	71	2†	− 1	15	40						12	10	8	w.	Wm. Booth.
Independence	Natrona			32.6		64	6	− 7	16	36	0.70		0.34	7.5	5	14	7	9	sw.	Henry D. Schoonmaker.
Kaycee	Johnson		8																	A. Grigg.
Kirtley	Converse		5	36.6		71	4	4	16	44	0.74		0.31	11.0	4	15	8	7	sw.	D. M. Zum Brunnen.
Kirwin	Big Horn	9,187	1	27.0		51	3†	− 8	15	52	5.10		1.50	51.0	13	13	8	9	w.	C. L. Tewksbury.
Knowles	Crook										0.99		0.50	8.0	5					G. A. Knowles.
Lander	Fremont	5,372	17	33.4	+ 4.7	67	2	− 4	15	40	1.42	+ 0.83	0.70	14.2	4	7	16	7	sw.	U. S. Weather Bureau.
Laramie	Albany	7,188	18	36.1	+ 4.4	67	3	2	16	38	0.29	+ 0.04	0.17	0.6	4	8	12	10	sw.	University of Wyoming.
Leo	do	6,878	8	35.6	+ 3.1	64	3	− 3	28	46	0.53	+ 0.19	0.29	5.5	6	11	6	13	w.	C. A. Cowdin.
Lolabama Ranch	Big Horn	7,052	6	30.6		62	5†	− 9	14	43	1.08		0.33	6.0	7	10	6	14	w.	Mary E. Painter.
Lovell	do		4	35.5		69	3†	− 3	15	43	0.39		0.12	1.5	5	14	5	11	s.	R. Fred Harrison.
Lusk	Converse	5,007	19	36.9	+ 4.1	72	3	3	15	42										D. E. Goddard.
Luther	Laramie			40.9[c]		74[c]	3	12[c]	28	42[c]	0.50[c]		0.50[c]	7.0[c]	1[c]				sw.	Henry D. Colburn.
Manville	Converse	5,050									0.89		0.30	11.0	5	18	6	6	w.	C. A. Sherman.
Moorcroft	Crook	4 211	6	33.7		76	3	−22	6	57	1.30		0.80	13.0	4	22	0	8		Jas. K. Somers.
Moore	Albany	6,000	8	39.7[a]	+ 2.2	71[a]	2	5[a]	15	45[a]	0.87[a]	+ 0.38	0.56[a]	6.3[a]	6[a]	5[a]	14[a]	10[a]	w.	Edwin Moore.
Newcastle	Weston	4,319	2	35.0		70	2	4	16	36	1.08		0.30	8.5	4	18	7	5	nw.	Dr. S. W. Johnson.
Pathfinder	Natrona	5,735	3																	U. S. Reclamation Service
Phillips	Laramie	4,900	6	39.2		70	3	0	15	40	0.68		0.30	6.8	5	19	4	7	nw.	Mrs. Arthur Rugg.
Pine Bluff	do	5,038	9																	C. W. Johnson.
Powell	Big Horn	4 376	2	34.8		71	3	− 1	15	40	0.32		0.20	3.2	3	10	15	5	w.	U.S. Reclamation Service
Riverton	Fremont		2					−10	15											Robert P. Quest.
Saratoga	Carbon	7,300	12	35.6	+ 4.1	66	3	2	28	45	0.92	+ 0.30	0.40	6.3	6	13	10	7	ne.	Supt., S. & E. R. R.
Sheridan (1)	Sheridan	3,790	14	34.8	+ 2.5	74	3	− 2	15	47	0.99	+ 0.31	0.39	10.4	9	6	11	13	nw.	U. S. Weather Bureau.
Sheridan (2)	do	3,738	14	35.4	+ 2.1	77	3	− 2	15†	52	1.10	+ 0.42	0.64	10.0	4	10	13	7	nw.	Geo. Brundage.
Shoshone Dam	Big Horn	5,385	3	39.4		72	4	− 1	15	39	0.91		0.59	6.6	7	11	12	7	w.	U. S. Reclamation Service
Soldiers' Home	Johnson	4,635	17	38.2	+ 1.9	71	2	0	15	49	1.90	+ 1.49	0.90	19.0	4	4	24	2	nw.	Geo. L. Courtney.
South Pass City	Fremont			28.7		58	3	− 4	28	36	1.51		0.79	5.8	10	9	11	10	sw.	John Sherlock.
Thermopolis	do	4,350	7	36.2		74	3	−10	15	50	0.53		0.31	6.0	4	18	10	2	sw.	A. L. Duhig.
Upton	Weston										0.95		0.25	9.5	8	12	6	12	sw.	G. E. McPherren.
Valley	Big Horn	6,500									2.16		0.60	13.0	10	11	12	7	w.	Jas. L. McLaughlin.
Verona	Sheridan										1.20		0.50	11.0	4	5	15	10	se.	O. A. Roode.
Wiley	Big Horn	5,375		37.0		69	3	− 5	15	35	0.68		0.47	9.3	3	19	5	6	w.	C. D. Marshall.
Wyncote	Laramie	4,207	2	38.7		77	3	1	17	54	0.90		0.50	12.0	5	10	13	7	nw.	U. S. Reclamation Service
Yellowstone Park	National Park	6,200	22	30.8	+ 1.5	57	5	− 1	14	29	1.16	− 0.28	0.41	4.9	14	6	6	18	sw.	U. S. Weather Bureau.
(1) Fountain	do			26.7		53	3†	−13	14	41	3.22		0.80		9	14	1	15	s.	U. S. Army.
(2) Grand Canon	do			22.4		41	4	1	27	30	3.85		1.66		6	10	5	15	ne.	Do.
(3) Lake Hotel	do	7,733	5	24.6		51	4	− 4	15	34	3.27		0.80	44.5	14	6	6	18	n.	Do.
(4) Norris Geyser	do	7,525	5	28.2		52	3	0	27	34	2.11		1.06	17.0	7	9	0	21	w.	Do.
(5) Riverside	do	6,500	3	28.0		56	4†	− 4	28	38	4.83		2.50		12	8	9	13	w.	Do.
(6) Soda Butte	do	7,000	4	29.6		59	3†	−15	14†	41	1.73		0.50	9.0	6	13	8	9	w.	Do.
(7) Sylvan Pass	do	7,000	2	28.4		55	4	0	12	34	4.28		0.80	34.0	10	18	1	11	sw.	Do.
(8) Thumb	do			26.6		54	3	− 3	28	33	5.39		1.05	52.0	13	10	11	9	n.	Do.
(9) Tower Falls	do			30.6		62	3	− 6	14†	42	0.31		0.08	7.7	8	14	5	11	sw.	Do.
(10) Upper Basin	do	7,395	5	28.2		53	3†	− 5	12	39	0.59		0.20		4	12	1	17	sw.	Do.
Montana.																				
Adams	Dawson		1	32.4		68	2	− 7	15	40	0.14		0.06	5.0	3	7	11	12	nw.	W. B. Ennis.
Adel	Cascade	5,200	11	34.2		64	3	− 7	15	35	1.20		0.43	4.0	6	7	5	18	w.	B. F. Burch.
Agricultural College	Gallatin	4,700	10	34.2	+ 2.5	66	3†	0	15	29	2.36	+ 1.40	0.60		11	3	11	16	se.	Prof. E. Burke.
Augusta	Lewis & Clark	4,071	10	33.4	+ 2.1	65	5	−26	14	42	0.65	− 0.04	0.30	5.0	4	16	11	3	w.	C. C. Covington.
Babb	Teton	4,461	4	26.6		48	1†	− 7	21	45	0.97		0.29	6.5	10	2	20	8	sw.	U. S. Reclamation Service
Bald Butte	Lewis & Clark	6 500									1.18		0.20	14.8	12	2	13	15		M. W. Alderson.
Big Creek	Park	5,800									1.17		0.63	11.0	5	3	17	10	w.	Peter Vink.
Big Timber Creek	Sweetgrass	4,070																		W. H. Patterson.
Billings	Yellowstone	3,115	15	33.6	− 0.7	72	2	−10	15	46	0.30		0.20	4.0	2				w.	U. S. Weather Bureau.
Boulder Nursery	Jefferson		16	32.8	+ 1.6	64	3	− 8	14†	36	0.82	+ 0.41	0.54	8.2	3	16	11	3		R. H. Spencer.
Bowen	Beaverhead	6,060	3	26.8		59	3	−18	15	45	2.14		0.50	14.3	11	8	8	14		B. B. Lawrence.
Bridger	Carbon	3,664	1	38.8		74	3	− 3	15	40	0.24		0.10	2.5	5	6	12	12	s.	L. E. Gard.
Broadview Exp. Sta	Yellowstone		3	33.2		72	3	−11	15	46	0.78		0.30	7.0	5	20	4	6	sw.	Thos. S. Hunt.
Browning	Teton	4.440																		Thos. B. Magee.
Busby	Rosebud		6	34.0		75	3†	− 6	15	52	0.93		0.32	8.5	6	11	6	13	w.	
Busteed	Sweetgrass		2																	T. H. Busteed.
Butte	Silver Bow	5,716	16	33.8	+ 0.1	63	3	− 4	15	34	2.65	+ 1.94	0.80	11.5	8	10	6	14	sw.	J. R. Wharton.
Canyon Ferry	Lewis & Clark	3,644	11	36.3	+ 3.8	70	3	− 1	15	42	0.58	+ 0.16	0.19	1.5	5	8	9	13	nw.	A. C. Pratt.
Cascade	Cascade	7,336	6	37.6		72	3	−17	15	48	0.78		0.31	4.7	6	12	13	5	sw.	E. E. James.
Cataract Creek	Jefferson	7,000																		Fred Gerdes.
Chessman Res.	Lewis & Clark	5 275	1	32.0		57	3	−10	14†	34	1.84		0.55	14.0	11	13	8	9	sw.	Chas. D.Schmidt.
Chester	Chouteau	3 140	6																	B. B. Weldy.
Chinook	do	2,205	13	30.2		65	3†	−17	15	52	0.76		0.17		7					Thos. O. Hanlon Co.
Chouteau	Teton	3,810	4	34.2[a]		70[a]	5	−18[a]	15	48[a]	0.40		0.20	4.0	4	5	5	20		H. Van De Reit.
Clear Creek	Chouteau		4																	C. Sedgwick.
Clemons	Lewis & Clark	4,672									0.52		0.18	1.6	7	3	15	12	w.	Frank Eberl.
Columbus	Yellowstone	3,160																		O. F. Wilkinson.
Copper	Meagher										1.59		0.48	13.5	9	15	9	6	w.	Orville Harris.
Crow Agency	Rosebud	3,041	29	34.6	+ 1.4	77	4	− 4	16	50	1.86	+ 1.14	0.70	12.5	8	16	0	14	nw.	F. E. Server.
Culbertson	Valley	1,927																		G. H. Coulter.

TABLE 1.—*Climatological data for November, 1909. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Montana—Cont'd.																				
Cut Bank	Teton	3,700	11	29.4	+ 2.2	59	3†	−17	15	41	0.38	− 0.78	0.20	3.5	4	15	6	9	w.	Chas. N. Thomas.
Decker	Rosebud	3,400	5	33.0	.....	61	5	−10	16	50	0.90	.....	0.50	4.0	2	.....	.....	.....	.....	Adam Anderson.
Deep Creek	Broadwater	4,200	....	.....	.....	.....	.....	.....	.....	.....	1.53	.....	0.63	2.7	9	8	9	13	w.	Mrs. D. W. Maryott.
Delphine	Meagher	5,000	....	.....	.....	.....	.....	.....	.....	.....	0.64	.....	0.17	16.8	5	6	18	6	w.	Tracy L. Holliday.
Denton	Fergus	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. M. Chamberlain.
Dillon	Beaver Head	5,147	12	37.2	+ 2.4	71	3	− 8	15	46	0.92	+ 0.12	0.20	4.7	11	11	6	13	sw.	J. E. Monroe.
Dirty Creek	Meagher	6,000	....	.....	.....	.....	.....	.....	.....	.....	0.95	.....	0.31	11.9	7	13	6	11	w.	Lewis Cameron.
Dry Creek	Broadwater	5,500	....	.....	.....	.....	.....	.....	.....	.....	3.64	.....	1.61	6.1	12	7	10	13	nw.	J. C. Stuart.
Dry Wolf Camp	Cascade	6,000	....	.....	.....	.....	.....	.....	.....	.....	0.80	.....	0.23	12.4	7	12	6	12	sw.	Mrs. R. J. Eveleth.
East Gallatin River	Gallatin	6,300	....	.....	.....	.....	.....	.....	.....	.....	1.89	.....	0.66	16.0	5	11	6	13	w.	John Eberhart.
Ekalaka	Custer	.....	8	35.4	+ 2.5	78	2	− 3	15	54	0.50	.....	0.20	5.0	3	13	7	10	w.	W. Freese.
Elkhorn	Jefferson	6,576	....	.....	.....	.....	.....	.....	.....	.....	1.74	.....	0.65	12.5	12	3	16	11	sw.	J. W. Skelton.
Evans	Cascade	4,900	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. Thrasher.
Fallon	Custer	2,208	5	32.2	.....	73	5	−13	16	50	0.35	.....	0.15	1.5	3	17	6	7	w.	Mrs. A. C. Gifford.
Family‡	Teton	3,950	1	30.6	.....	61	29	−20	15	52	0.90	.....	0.27	5.1	7	2	22	6	w.	U. S. Reclamation Service
Fish Creek‡	Silver Bow	8,500	....	28.3	.....	52	3	− 6	14	28	2.61	.....	0.72	32.5	7	16	3	11	w.	O. B. Tilton.
Fish Tail Creek	Carbon	5,000	....	.....	.....	.....	.....	.....	.....	.....	0.76	.....	0.30	9.1	4	14	9	7	w.	O. E. Haskin.
Flathead Creek	Gallatin	6,000	....	.....	.....	.....	.....	.....	.....	.....	4.08	.....	0.84	27.1	10	6	9	15	nw.	L. G. Brown.
Forsyth	Rosebud	2,514	3	35.4[a]	.....	78[a]	3	− 0[a]	15	40[a]	0.40	.....	0.15	2.5	3	5[a]	17[a]	7[a]	nw.	Thos. M. Patterson, jr.
Fort Benton	Chouteau	2,630	30	34.4	+ 2.7	68	4	− 8	15	29	0.70	+ 0.15	0.40	7.0	2	20	10	0	sw.	River Observer.
Fort Shaw	Cascade	3,500	21	35.4[a]	+ 2.2	68[a]	3	−20[a]	15	47[a]	0.84	+ 0.42	0.28	7.5	5	23	3	4	sw.	U. S. Reclamation Service
Fort W. H. Harrison	Lewis & Clark	4,004	6	35.2	.....	67	3	0	14	39	.....	.....	.....	.....	.....	17	9	4	w.	Post Hospital.
Foster	Yellowstone	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. K. Bowman.
Garneil	Fergus	5,500	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. E. Scally.
Glendive	Dawson	2,069	20	33.2	+ 3.4	73	3	− 9	16	44	0.44	− 0.13	0.20	5.0	3	15	7	8	n.	W. B. Walker.
Goldbutte	Chouteau	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. T. Berthelote.
Graham	Custer	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. S. Rue.
Grayling	Gallatin	6,700	6	25.4[a]	.....	55[a]	3†	−13[a]	15	41[a]	1.87	.....	0.41	6.0	14	8[a]	9[a]	12[a]	sw.	P. Kerzenmacher.
Great Falls	Cascade	3,350	18	35.8	+ 1.0	70	3	−12	15	46	1.03	+ 0.23	0.23	9.2	9	10	15	5	sw.	S. H. Bauman.
Half Moon Pass	Fergus	6,500	....	.....	.....	.....	.....	.....	.....	.....	1.60	.....	0.50	22.2	8	3	23	4	w.	Thos. Stigen.
Half Way House	Broadwater	6,000	....	.....	.....	.....	.....	.....	.....	.....	3.63	.....	1.43	14.5	11	20	5	5	sw.	Gordon Deans.
Harlowton	Meagher	4,165	2	33.1	.....	69	3	−16	15	52	1.50	.....	0.45	15.0	6	7	8	15	w	Jos. Muir.
Hassel	Broadwater	5,200	....	.....	.....	.....	.....	.....	.....	.....	0.70	.....	0.22	1.8	6	0	25	5	nw.	E. C. Albrecht.
Havre	Chouteau	2,505	29	29.0	+ 1.6	66	3	−16	15	42	1.01	+ 0.24	0.34	9.5	11	3	11	16	sw.	U. S. Weather Bureau.
Helena	Lewis & Clark	4,110	30	36.2	+ 3.5	68	3	− 2	15	32	0.51	− 0.21	0.18	2.9	7	4	12	14	sw.	U. S. Weather Bureau.
Highwood	Chouteau	.....	....	.....	.....	.....	.....	.....	.....	.....	1.06	.....	0.60	8.0	4	7	8	15	sw.	W. S. McCord.
Home Park	Madison	.....	....	.....	.....	.....	.....	.....	.....	.....	0.73	.....	0.40	7.0	5	13	2	15	s.	H. L. Miller.
Huntley	Yellowstone	3,014	4	35.6	.....	75	3	−10	15	46	0.65	.....	0.28	9.0	4	15	8	7	e.	U. S. Reclamation Service
Jones Canyon	Gallatin	6,800	....	.....	.....	.....	.....	.....	.....	.....	3.80	.....	0.84	41.0	13	.....	.....	.....	w.	Jas. McCune.
Jordan	Dawson	.....	5	33.0	.....	73	3	−21	14	61	0.20	.....	0.20	2.0	1	.....	.....	.....	.....	W. S. Henderson.
Kleinsmith Creek	Jefferson	6,000	....	.....	.....	.....	.....	.....	.....	.....	1.54	.....	0.80	4.8	9	4	24	2	w.	Mrs. E. W. Mills.
Lewistown	Fergus	4,010	12	35.2	+ 2.6	68	4†	−12	15	39	0.91	0.00	0.31	8.0	6	14	8	8	w.	W. W. Watson.
Livingston	Park	4,488	11	39.6	+ 3.4	70	3	3	15	34	1.73	+ 0.81	0.45	16.0	10	12	3	15	sw.	Lewis Terwilliger.
Lodge Pole Creek	Sweetgrass	5,700	....	.....	.....	.....	.....	.....	.....	.....	1.85	.....	0.58	16.0	5	9	10	11	sw.	F. G. White.
Lone Tree	Chouteau	.....	5	37.0[b]	.....	74[b]	5	−15[b]	15	45[b]	0.90	.....	0.38	6.0	5	16	6	8	w.	E. Wilson.
Lost Horse Creek	Meagher	5,800	....	.....	.....	.....	.....	.....	.....	.....	0.95	.....	0.23	13.5	9	10	14	6	w.	C. M. Mason.
Lubec	Teton	5,046	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malta	Valley	2,240	3	28.4	.....	70	3	−12	15	42	0.84	.....	0.22	6.2	11	14	7	9	w.	U. S. Reclamation Service
Meadow Creek	Madison	6,700	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. E. Parent.
Melstone	Fergus	2,903	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. J. Parkinson.
Mildred	Custer	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Leon B. Clark.
Miles City	do	2,371	15	35.6	+ 4.7	76	3	− 5	16	43	1.19	+ 0.59	0.64	5.8	9	11	13	6	sc.	U. S. Weather Bureau.
Mill Creek	Park	5,500	....	.....	.....	.....	.....	.....	.....	.....	0.77	.....	0.26	7.5	5	8	12	10	sw.	W. H. Edick.
Moore	Fergus	.....	....	.....	.....	.....	.....	.....	.....	.....	1.28	.....	0.53	9.0	5	11	7	12	w.	Clyde Grove.
Mudd Creek	Deer Lodge	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Emery Mudd.
Norris	Madison	4,845	3	35.0	.....	78	4†	− 6	16	50	1.57	.....	0.42	7.0	13	13	4	13	s.	Madison River Power Co
Nye	Sweetgrass	.....	1	32.9	.....	63	5	− 4	15	47	1.71	.....	0.34	15.2	11	13	6	11	sw.	F. L. Bryant.
Olsen Creek	Jefferson	6,345	....	.....	.....	.....	.....	.....	.....	.....	2.57	.....	0.69	13.0	10	5	11	14	w.	Robt. Olsen.
Pipestone Pass	Jefferson	7,000	....	.....	.....	.....	.....	.....	.....	.....	1.07	.....	0.35	20.5	8	10	13	7	nw.	Mrs. Theola Kiermeyer.
Poplar	Valley	2,020	25	30.5	+ 3.3	69	5	−11	15	43	0.60	+ 0.07	0.20	6.0	4	21	1	8	n.	H. M. Cosier.
Raymond	Teton	4,260	2	.....	.....	.....	.....	.....	.....	.....	0.64	.....	0.34	.....	4	6	17	7	w.	W. H. Campbell.
Rebers Ranch	Carbon	6,000	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. A. Reber.
Red Lodge	do	5,548	9	34.0	+ 0.9	70	3	− 7	15	36	0.76	.....	0.21	6.6	9	12	6	12	se.	I. A. Draper.
Reese Creek	Gallatin	5,000	....	.....	.....	.....	.....	.....	.....	.....	4.80	.....	0.90	29.0	9	10	7	13	.....	Henry Cramer.
Renova	Jefferson	4,383	10	36.6	.....	70	3	− 5	15	40	0.72	.....	0.42	6.5	9	14	4	12	sw.	F. B. Elmer.
Rimini	Lewis & Clark	7,900	1	.....	.....	.....	.....	.....	.....	.....	1.54	.....	0.40	17.3	7	8	8	14	sw.	Milo Brooks.
Ryegate	Yellowstone	3,640	1	31.4	.....	55	18	0	13	22	0.74	.....	0.37	4.6	3	21	1	8	w.	H. W. Scherfenberg.
Sedan	Gallatin	3,155	2	32.2	.....	61	3	− 9	15	37	2.11	.....	0.45	21.3	14	7	9	14	w.	Jas. Woosley.
Springbrook	Dawson	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. H. L. Miller.
Stearns	Lewis & Clark	4,500	....	.....	.....	.....	.....	.....	.....	.....	1.72	.....	0.75	3.0	5	15	0	15	s.	Jas. W. Hargrove.
Tokna‡	Dawson	2,050	4	32.1[a]	.....	72[a]	1	−13	15	55[a]	0.50	.....	0.40	5.0	2	19	5	6	nw.	U. S. Reclamation Service
Toston	Broadwater	3,950	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Little.
Townsend	do	3,790	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	River Observer.
Trail Creek	Park	6,000	....	.....	.....	.....	.....	.....	.....	.....	2.09	.....	0.45	17.0	13	11	13	6	w.	Andrew Weidenbauer.
Utica	Fergus	5,000	16	34.0	+ 0.2	68	3	− 8	15	39	0.30	− 0.62	0.11	7.5	5	25	5	0	w.	P. W. Korell.
Valentine	do	.....	3	32.2	.....	72	2†	−14	15	47	0.44	.....	0.13	.....	6	16	5	9	w.	B. M. Bean.
Virginia City	Madison	5,880	21	33.4	+ 3.3	60	2†	0	15	39	3.48	+ 2.60	0.85	21.2	11	5	15	10	w.	Francis Mailand.
Wall Rock Mountain	Broadwater	5,600	....	.....	.....	.....	.....	.....	.....	.....	2.10	.....	0.63	10.8	12	11	10	9	.....	D. L. Doig.
Warm Springs Creek‡	Madison	7,500	1	.....	.....	.....	.....	.....	.....	.....	1.57	.....	0.40	13.7	11	5	7	18	sw.	M. D. Lytle.
West Rosebud Creek	Carbon	.....	....	.....	.....	.....	.....	.....	.....	.....	0.15	.....	0.05	0.8	4	12	8	10	.....	C. P. Whitten.
Willow Creek	Park	9,000	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Topp.
Wolf Creek	Lewis & Clark	4,000	6	37.2	.....	71	3	− 3	15	40	0.93	.....	0.25	6.1	6	7	8	15	se.	A. W. Varharen.
Wolf Point	Valley	1,995	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	River Observer.
Woodville	Jefferson	6,376	....	.....	.....	.....	.....	.....	.....	.....	1.78	.....	0.67	13.3	10	11	8	11	sw.	Anna Kinman.
North Dakota.																				
Aplin	Oliver	.....	2	30.6	.....	78	30	−14	15	46	0.18	.....	0.10	2.5	4	12	10	8	w.	J. B. Haselbarger.
Beach	Billings	2,759	2	36.8	.....	67	3	−13	15	37	0.27	.....	0.20	3.0	3	8	12	10	nw.	D. J. Steiner.
Berlin	La Moure	1,470	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. S. French.
Berthold Agency	McLean	2,082	12	30.6	+ 2.5	70	2	−13	15	49	0.29	− 0.32	0.17	3.6	3	9	7	14	nw.	C. L. Hall.
Bismarck	Burleigh	1,674	34	30.0	+ 4.0	68	3	− 4	15	40	0.41	− 0.27	0.17	7.1	7	7	11	12	nw.	U. S. Weather Bureau
Broncho	Mercer	.....	1	30.0	.....	65	5	− 8	15	40	0.35	.....	0.20	3.5	3	0	26	4	nw.	E. M Walker.
Buford	Williams	1,944	3	30.4	.....	69	3	−10	15	44	0.20	.....	0.20	2.0	1	18	4	8	nw.	G. O. Sanford.
Coal Harbor	McLean	1,901	12	30.6[a]	+ 6.1	72[a]	10	−19[a]	15	45[a]	0.10	− 0.63	0.10	1.0	1	.....	.....	.....	s.	F. H. Childs.
Dickinson	Stark	2,453	16	31.4	+ 4.4	71[a]	2	−15	15	56	0.29	− 0.30	0.21	2.9	4	10	9	11	nw.	L. R. Waldron.
Edgeley	Lamoure	1,468	7	29.5	− 1.4	69	4	− 8	15	43	0.34	− 0.12	0.34	3.4	2	8	3	19	nw.	O. A. Thompson.
Ellendale	Dickey	1,449	16	29.8	+ 3.7	72	6	− 3	15	42	0.19	− 0.50	0.15	.....	3	7	6	17	n.	U. S. Weather Bureau.
Epping	Williams	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. G. Wilson.

TABLE 1.—*Climatological data for November, 1909. District No. 6*—Continued.

Stations	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Dakota—Cont'd.																				
Fullerton	Dickey	1,439	10	28.2	− 0.8	70	6	−18	15†	42	1.00	+ 0.40	0.70	10.0	3	12	8	10	s.	F. O. Alin.
Haley	Bowman		1	39.2		88	3	− 7	14	36	0.41		0.37	4.8	5	9	7	14	nw.	Myra Hart.
Hettinger	Adams	2,253	2	40.9		74[a]	3	7	17	28[a]	0.55		0.20	5.5	3	1	23	6		F. E. Eilickson.
Howard	Williams	2 275	2																	C. B. Amsbaugh.
Jamestown	Stutsman	1,390	21	29.0	+ 2.8	67	6	2	22†	45	0.60	− 0.21	0.50	6.0	4	5	19	6	sw.	L. B. Baldwin.
Kulm	Lamoure	1,966	4																	J. F. Brenckle.
Lamoine	Kidder		1	28.8		64	3†	−10	15	39	T.		T.	T.	0	14	7	9	nw.	E. V. Virgin.
Lamoure	Lamoure	1,307	2																	A. H. Ormsby.
Manfred	Wells			28.9		63	3	−10	15	43	0.20		0.10	2.10	2	9	12	9	sw.	
Marmarth	Bowman		1								0.19		0.06	5.0	6	11	11	8	w.	S. P. Crane.
Marstonmoor	Stutsman		1								0.40		0.30	4.0	2	9	14	7	sw.	H. H. McCumber.
Medina	do	1,796	4																	M. Dwyer.
Medora	Billings	2,225	12	31.0	+ 2.0	80	4	−20	15	58	1.04	+ 0.76	1.04	3.8	2	10	8	12	sw.	J. W. Heaser.
Melville	Foster	1,590	11	26.4[c]	+ 1.9	58[c]	2	−10[c]	15	52[c]	0.30	− 0.01	0.30	3.0	1				nw.	J. P. Kidder.
Mott	Hettinger		2	3.02		68	3	−14	21	40	0.70		0.21	10.0	7	8	10	12	nw.	O. H. Opland.
Napoleon	Logan	1,955	17	28.2	+ 2.9	67	4	−16	15	47	0.35	− 0.47	0.35	4.0	1	17	2	11	nw.	C. J. Hoof.
New England	Hettinger	2,400	13	31.0	+ 3.5	69	4	0	13	53	0.90	+ 0.34	0.40	9.0	5	14	2	14	nw.	W. C. McKenzie.
New Salem	Morton	2,163	2	33.3[d]		68	3†	0[e]	16	40[e]	0.42		0.20	5.0	3	11	10	9	sw.	J. Christiansen.
Orange	Adams		2	30.4		72	2	− 7	15	50	0.60		0.50	8.0	2	10	8	12	sw.	J. E. Goforth.
Palermo	Ward	2,200	5	32.9		60	3†	7	15	30	0.10		0.10	1.0	1	9	11	10	nw.	T. A. McCann.
Steele	Kidder	1,857	13	29.7	+ 3.4	66	3†	− 7	15	41	0.15	− 0.28	0.15	1.5	1	13	5	12	nw.	B. C. Smith.
Swartwood	Bowman		1								0.51		0.14	T.	7	12	6	12	se.	W. F. Adams.
Washburn	Mc Lean	1,731	5	30.5		68	3	0	21	41	0.11		0.06	2.3	2	12	11	7	w.	W. R. Peterson.
Williston	Williams	1,875	29	28.3	+ 3.1	68	2	−10	15	41	0.20	− 0.40	0.12	2.0	5	4	15	11	se.	U. S. Weather Bureau.
Wishek	McIntosh	2,010	4	31.3[c]		70[c]	2	−17[c]	15	47[m]	0.20		0.15	2.0	2					H. E. Timms.
South Dakota.																				
Aberdeen	Brown	1,300	20	29.0	+ 0.5	75	6	− 5	15	44	1.18	+ 0.28	0.80	12.0	4	11	5	14	ne.	D. G. Gallett.
Academy	Charles Mix		21	36.3	− 0.6	80	6	7	15†	51	1.62	+ 1.22	0.65	17.0	6	12	9	9	nw.	I. T. Lothrop.
Alexandria	Hanson	1,352	21	37.8	+ 5.3	77	6	6	15	35	1.92	+ 1.32	1.07	15.5	4	13	10	7	se.	W. S. Hill.
Andover	Day	1,476																		E. L. Stone.
Ardmore	Fall River	3,557	1								1.00		0.40	10.0	6	19	6	5		C. G. Hurlbut.
Armour	Douglas	1,521	16	37.2[f]		81	4	0[m]	17	47[m]	1.75	+ 1.01	0.40	9.5	7	14	9	7	nw.	J. S. Bean.
Ashcroft	Harding	3,192	18																	Thos. Ashcroft.
Belle Fourche	Butte	3,000	2	34.0		75	3	− 8	17	52	0.65		0.30	7.1	7	5	8	17	nw.	W. H. McGinley.
Bowdle	Edmunds	1,995	15																	C. T. Smithers.
Brookings	Brookings	1,636	22	33.8	+ 4.3	75	4†	− 2	21	43	0.65	+ 0.06		5.5	6	7	10	13	nw.	Prof. C. Willis.
Burke	Gregory		2	36.1[a]		81	4	1[a]	16†	40[a]	1.05		0.40	10.5	5	19	2	9		James Connell.
Canton	Lincoln	1,248	14	36.2	+ 2.3	77	4	0	18†	39	2.39	+ 1.38	1.49	15.0	4	16	5	9	sc.	John .H Holsey.
Cascade Springs	Fall River	3,422	2	35.1		75	5†	2	16	56	1.50		0.58	12.5	5	10	6	14	nw.	Fred Norenberg.
Castlewood	Hamlin	1,685	4	32.4		75	4	− 3	21	43	0.73		0.58	7.2	6	9	2	19	nw.	M. N. Bradley
Centerville	Turner	1,229	5	36.3	+ 0.1	77	6	2	17	46	2.81	+ 2.14	0.63	21.2	10	6	8	16	nw.	Frank Williams.
Chamberlain	Brule	1,363	12								1.21	+ 0.85	0.73	15.0	2	12	8	10	nw.	G. A. Fry.
Clark	Clark	1,779	16	32.4	+ 2.0	74	6	− 5	21	36	1.25	+ 0.51	0.50	12.5	6	11	10	9	sw.	O. H. La Craft.
Clear Lake	Deuel	1,800	7																	L. F. Hanly.
Clifton	Sully																			H. F. Chamberlain.
Cottonwood	Stanley		1	35.6		79	9	− 7	16	51	0.41		0.12	7.5	9	13	8	9	nw.	S. W. Sussex.
Daviston	Perkins		1	30.6		79	6	− 5	16	58	0.50		0.25	5.0	3	5	15	10	nw.	G. G. Davis.
Deadwood	Lawrence	4,535	1	38.8		71	3	3	14	42	0.80		0.50	5.9	2	17	5	8		R. E. Grimshaw.
De Smet	Kingsbury	1,726	18	34.5	+ 4.1	77	4	1	17†	39	0.60	− 0.09	0.20	6.0	4	16	6	8	nw.	J. O. Purinton.
Dowling	Stanley	2,250	1	35.8		79	6	− 3	16	46	1.93		0.60	22.0	8	11	5	14	sw.	M. P. Dowling.
Dumont	Lawrence	6,195	1								0.82		0.25	7.0	5	17	4	9	sw.	A. B. Wood.
Elk Point	Union	1,127	11	41.2[c]	+ 3.8	78[f]	4†	2	17	40[f]	3.20	+ 2.30	1.10	13.0	5	8	10	12	ne.	M. Hoffman, jr.
Ellingson	Perkins																			R. E. Sheriff.
Englewood	Lawrence	5,723	1								0.34		0.13	7.1	6	6	7	17	sw.	E. E. White.
Eureka	McPherson	1,884	1	33.0		73	6	− 2	15	41	0.45		0.20	4.5	4	13	8	9	nw.	W. D. Griggs.
Fairfax	Gregory		7																	J. T. Murphy.
Farmingdale	Pennington	3,000	14																	A. E. Nicholls.
Faulkton	Faulk	1,595	16	31.7	+ 2.2	75	6	0	15	46	1.33	+ 0.87		10.5	6	15	4	11	nw.	Miss Belle Talcott.
Flandreau	Moody	1,565	20	34.2	+ 3.9	79	4	1	18	45	2.00	+ 1.16	1.30	8.5	4	9	9	12	s.	G. A. Perley.
Forestburg	Sanborn	1,231	19	33.0	+ 2.1	80	3†	0	15†	42	1.40	+ 0.82	0.40	14.0	5	15	5	10	nw.	M. K. Judy.
Fort Meade	Meade	3,624	29	38.1	+ 3.7	77	3	6	13†	44	1.70	+ 1.12	0.80	11.7	4	6	4	20	w.	Post Surgeon.
Frederick	Brown	1,371	3			72[m]	5				0.89		0.30	7.0	4					J. E. Jeffers.
Gannvalley	Buffalo		12	34.8	− 2.8	80	6	5	14†	43	1.70	+ 1.32	0.60	17.0	5	8	12	10	nw.	V. P. Drips.
Greenmount	Lawrence	6,430	1								0.68		0.22	8.0	5	8	13	9	w.	John H. Leitel.
Greenwood	Charles Mix		15	38.9	+ 2.3	86	4	8	15†	49	1.60	+ 0.90	0.60	16.0	3	11	8	11	nw.	T. C. Williamson.
Hardy Ranger Station	Lawrence	6,600									0.97		0.28	11.0	5	22	1	7	sw.	Mrs. Mary E. Seals.
Hermosa	Custer	3,349	4	38.4		78	3	0	15	42	1.01		0.50	11.0	5	17	5	8		S. M. Booth.
Highmore	Hyde	1,890	16	31.8	− 1.7	79	6	− 5	17	44	0.71	+ 0.22	0.32	7.0	5	9	10	11	nw.	P. H. Moore.
Hill City	Pennington	5,061	1								0.94		0.26	10.6	8	10	9	11	w.	Geo. A. Karr.
Howard	Miner	1,564	18	34.4[c]	+ 3.2	77[c]	4	− 6[c]	18	40[c]									nw.	J. J. Cox.
Howell	Hand		8	31.6		81	6	0	17	49	0.58		0.20	6.1	7	14	7	9	nw.	M. A. Shuster, jr.
Huron	Beadle	1,306	29	31.7	+ 4.3	76	6	0	15	42	1.34	+ 0.76	0.76	12.6	8	18	10	12	nw.	U. S. Weather Bureau.
Ipswich	Edmunds	1,530	12	30.0	+ 0.5	76	5	− 2	18	44	0.62	+ 0.23	0.30	5.5	4	18	5	7	nw.	J. B. Taylor.
Kadoka	Stanley	2,467	1	35.2[b]		79[d]	7	5[a]	17	44[a]	0.56		0.24	7.5	6	12	11	7		Rev. D. S. Brown
Kennebec	Lyman	1,689	14	33.7[b]	+ 1.4	84	6	1[c]	17	59[c]	1.30	+ 0.94	0.40	13.0	6	16	3	11		R. C. Van Horn.
Kidder	Marshall	1,295	6	31.0		77	6	−10	15	38	1.10		0.87	10.0	3	16	2	12	sw.	H. C. Schussler.
Kimball	Brule	1,788	20	34.4	+ 2.4	78	6	2	17	44	1.05	+ 0.50	0.28	16.0	6	16	7	7	nw.	G. D. Rose.
La Delle	Spink	1,400	13	32.4[c]	+ 1.0	75[c]	6	−12[c]	17	46[c]	1.25	+ 0.56	0.52	15.5	6	15	1	14	se.	E. L. Ebbert.
Lead	Lawrence	5,200	1	40.1[a]		69[a]	10	5[a]	14	35	0.80		0.41	7.5	7	9	10	11		E. F. Irwin.
Lemmon	Perkins	2,345	1	31.8		72	2	− 1	15	38	0.70		0.27	7.0	4	11	6	13	se.	W. E. Lyman.
Leslie	Stanley	1,225																		C. E. Robinson.
Marion	Turner	1,447	9	36.4		78	4	3	17	41	3.78		1.09	21.0	7	14	9	7	nw.	M. H. Dains.
Mellette	Spink	1,300	17	32.2	+ 1.8	73	6	− 3	15	42	0.78	+ 0.26	0.45	7.8	4	13	7	10	se.	Frank A. Howe.
Menno	Hutchinson	1,325	14	36.0	+ 1.8	78	6	3	17	38	2.42	+ 1.67	0.95	14.0	5	14	5	11	se.	J. H. Swanton.
Mitchell	Davison	1,312	14	33.6	+ 0.5	78	6	1	15	42	1.52	+ 0.89	0.50	20.0	4	22	3	5	s.	C. W. Downey.
Murdo	Lyman	2,300	2	35.2		80	6	0	14†	45	0.60		0.25		4	12	5	13	nw.	L. C. Bode.
Orman	Butte	2,920	4	36.4		75	3†	− 1	28	51	0.41		0.26	5.0	3	10	3	17	e.	W. H. Rader.
Ottumwa	Stanley		2	33.3		76	6	− 4	16	53	1.10		0.30	11.0	5	10	10	10	nw.	H. Hallenbeck.
Pierre	Hughes	1,572	19	35.0	+ 3.4	81	6	7	21	41	1.24	+ 0.81	0.54	13.0	8	8	11	11	e.	U. S. Weather Bureau.
Plankinton	Aurora	1,528	19								1.99	+ 1.56		19.5	5	9	12	9	nw.	W. G. Andrews.
Pollock	Campbell		3			69[b]	3†				0.70			7.0	6	18	6	6		J. H. Jones.
Rapid City	Pennington	3,251	22	37.6	+ 4.0	75	3	− 2	16	45	0.93	+ 0.47	0.29	10.7	6	5	12	13	w.	U. S. Weather Bureau.
Redfield	Spink	1,295	12	30.4	− 1.0	76	6	− 3	21†	47	1.05	+ 0.66		6.0	3	14	2	14	sw.	A. S. Hall.
Rosebud	Meyer	2,600	15	37.6[a]	+ 3.0	76[a]	6	1[a]	22	43[a]	1.85	+ 1.28	0.40	18.5	8	8	11	11	sw.	W. M. Ege.
Roslyn	Day		4	31.0		74	6	− 2	15	35	0.80		0.70	8.0	2	11	8	11	nw.	O. O. Floren.
Running Water	Bon Homme																			W. N. Isham.
Savoy	Lawrence	4,500									0.85		0.33	8.0	7	5	15	10		W. J. Hall.

TABLE 1.—*Climatological data for November, 1909. District No. 6*—Continued.

Stations	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
South Dakota—Cont'd.																				
Selby	Walworth	.....	1	32.2[b]	.....	70[b]	3	4[b]	21	37[b]	1.28	.....	0.90	6.0	4	8	10	12	se.	Miss Gertrude Hall.
Sioux Falls	Minnehaha	1,400	20	38.0	+ 6.4	79	4	4	17	42	2.40	+ 1.64	1.50	13.0	6	14	1	15	nw.	J. H. Bechtold.
Spearfish	Lawrence	3,647	....	40.0	+ 3.6	74	4	2	16	41	0.57	+ 0.02	0.25	5.0	3	7	6	17	w.	O. A. Martin.
Stephan	Hyde	1,840	5	32.0	.....	80	6	1	17	45	0.90	.....	0.30	9.0	6	9	8	13	se.	Rev. A. Mattingly.
Tama	Meade	.....	1	32.2	.....	77	6	— 6	16†	50	1.04	.....	0.35	10.2	8	6	17	7	se.	J. J. Daily.
Vale	Butte	2,765	2	33.7[a]	.....	76[a]	3	— 7[a]	16	52[a]	0.43	.....	0.10	7.2	7	13	7	10	e.	G. W. Shaw.
Van Metre	Lyman	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Thos. R. Hill.
Vermillion	Clay	1,222	8	39.6	.....	79	4	4	17	39	4.53	.....	1.70	22.5	8	16	3	11	nw.	Prof. E. C. Perisho.
Water's Ranch	Lawrence	4,000	1	.....	.....	.....	.....	.....	.....	.....	0.90	.....	0.30	11.1	4	10	6	14	nw.	Geo. Waters.
Watertown	Codington	1,735	14	32.6	+ 4.3	74	6	0	15	38	1.14	+ 0.52	0.80	6.0	3	12	5	13	s.	Robert Q. Wood.
Wentworth	Lake	.....	19	34.2	+ 4.9	79	4	2	18	41	1.49	+ 0.83	0.56	8.6	4	14	4	12	s.	R. C. Zimmerman.
Wessington Springs	Jerauld	1,410	14	34.3	+ 2.2	78	6	5	15†	41	1.03	+ 0.50	0.50	9.0	5	10	8	12	nw.	F. N. Dunham.
White Lake	Aurora	1,646	....	.....	.....	.....	.....	.....	.....	.....	3.74	.....	.....	.....	4	14	2	14	nw.	Mrs. G. A. Rogers.
Yankton	Yankton	1,234	37	37.3	+ 3.8	81	4	9	18	43	2.50	+ 1.71	0.69	25.8	11	4	14	12	nw.	U.S. Weather Bureau.
Minnesota.																				
Pipestone	Pipestone	1,710	10	.....	.....	.....	.....	.....	.....	.....	0.65	— 0.33	0.20	6.5	6	8	14	8	se.	W. S. Campbell.
Colorado.																				
Akron	Washington	4,650	7	.....	.....	.....	.....	.....	.....	.....	0.48	.....	0.28	7.5	2	.....	.....	.....	.....	Ira M. Barnhouse.
Alma	Park	10,238	12	.....	.....	.....	.....	.....	.....	.....	1.58	.....	0.48	.....	8	8	7	15	.....	W. H. Powless.
Arriba (near)	Lincoln	5,239	3	37.7	.....	76	6	3	17	47	0.95	.....	0.60	9.0	4	13	9	8	sw.	C. S. Graves.
Auldhurst	Teller	8,500	....	.....	.....	.....	.....	.....	.....	.....	1.49	.....	0.57	18.5	6	12	14	4	s.	Mrs. Alice A. Auld.
Barker	Boulder	8,000	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E'n Colo. P. Co.
Boreas	Park	11,489	....	.....	.....	.....	.....	.....	.....	.....	0.94	.....	0.21	11.6	8	5	8	17	nw.	Frank Soper.
Boulder	Boulder	5,347	13	43.8	+ 1.1	74	3	6	28	30	1.56	+ 0.85	0.45	16.5	7	21	3	6	w.	S. A. Giffin.
Burlington	Kit Carson	4,160	5	42.4	.....	78	3	9	16	44	1.16	.....	0.50	9.0	5	17	4	9	sw.	C. Creglow.
Cassels	Park	8,445	....	.....	.....	.....	.....	.....	.....	.....	1.13	.....	0.50	15.2	6	11	4	15	e.	Harriet M. Cassell.
Castle Rock	Douglas	6,220	18	40.7	+ 4.9	74	6	— 6	16	47	0.60	+ 0.02	0.40	6.0	2	.....	.....	.....	.....	Chas. Hy. Ellis.
Cheesman	Jefferson	6,890	6	40.6	.....	75	2	7	16	46	1.67	.....	0.46	13.5	6	18	8	4	sw.	C L. Adams.
Cheyenne Wells	Cheyenne	4,279	16	40.6	+ 1.2	77	7	8	17	45	1.43	+ 0.94	0.66	11.5	4	15	6	9	s.	J. B. Robertson.
Como	Park	9,785	10	.....	.....	.....	.....	.....	.....	.....	1.93	.....	0.80	29.0	5	.....	.....	.....	.....	Edwin Pike.
Cope	Washington	.....	11	41.8	+ 3.8	79	4	6	17	49	1.68	+ 0.96	0.46	10.0	5	13	7	10	s.	A. A Williams.
Corona	Grand	11,660	2	22.2	.....	44	3	— 5	16	20	1.96	.....	0.60	30.8	11	11	7	12	w.	U. S. Weather Bureau.
Denver	Denver	5,272	37	42.7	+ 3.5	75	6	9	16	39	1.10	+ 0.58	0.47	13.5	7	9	12	9	s.	U. S. Weather Bureau.
Edgewater	Jefferson	.....	1	41.6	.....	77	3	3	16	45	0.95	.....	0.34	7.0	5	12	8	10	.....	Dr. J. B. Fish.
Estes Park Hatchery	Larimer	8,000	....	.....	.....	.....	.....	.....	.....	.....	1.09	.....	0.38	18.5	8	9	5	16	w.	Gaylord H. Thompson.
Fort Collins	....do	4,985	29	37.8	+ 2.6	76	3	— 3	16	46	0.79	+ 0.36	0.50	8.8	7	15	7	8	nw.	Colo. Agrt. College.
Fort Morgan	Morgan	4,319	14	37.9	+ 2.1	80	4†	— 4	16	57	0.81	+ 0.44	0.71	10.0	2	8	14	8	e.	Della M. Scott.
Frances	Boulder	9,300	4	35.4	.....	62	3†	4	14	40	1.50	.....	0.42	16.2	11	14	10	6	w.	D. A. Barry
Fry's Ranch	Larimer	7,500	....	36.8	.....	71	3	— 2	15	46	1.42	.....	0.81	7.5	6	13	10	7	w.	Norman W. Fry.
Georgetown	Clear Creek	8,556	8	.....	.....	.....	.....	.....	.....	.....	1.20	.....	0.39	16.5	7	15	6	9	.....	H. L. Corbett.
Greeley	Weld	4,649	18	39.9	+ 1.7	77	3†	3	16	52	0.74	+ 0.25	0.43	6.0	9	9	9	12	se.	Nelson Reynolds.
Hartsel	Park	7,679	....	.....	.....	.....	.....	.....	.....	.....	0.84	.....	0.45	9.2	5	6	15	9	w.	Emily Kleinknecht.
Hawthorne	Boulder	6,000	1	.....	.....	.....	.....	.....	.....	.....	1.66	.....	0.46	17.5	6	20	1	9	.....	B. L.Chesebro.
Holyoke (near)	Phillips	3,745	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. E. T. Hazen.
Idaho Springs	Clear Creek	7,534	9	39.0	+ 4.6	67	5†	6	28	42	1.30	.....	0.50	16.5	7	0	24	6	w.	J. J. Wilis.
Keota	Weld	4,966	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kossler	Boulder	7,720	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E'n. Colo. P. Co.
La Port	Larimer	5,053	18	.....	.....	.....	.....	.....	.....	.....	1.01	+ 0.55	0.57	13.7	6	.....	.....	.....	.....	P. A. Taft.
Le Roy (near)	Logan	4,380	20	39.0	+ 1.7	75	4	5	16	42	0.91	+ 0.49	0.63	7.0	5	11	7	12	w.	Chas. Green.
Longmont	Boulder	4,980	7	41.2	.....	82	6	3	16	56	0.78	.....	0.37	6.5	4	11	8	11	w.	Geo. W. Johnson.
Long's Peak (near)	Larimer	8,600	14	33.8	+ 2.3	64	3	— 4	13†	46	1.76	+ 1.14	0.90	19.0	7	16	9	5	nw.	Enos A. Mills.
Moraine	....do	7,775	19	32.0	— 1.6	64	3	3	16†	53	1.08	+ 0.43	0.40	14.0	5	8	12	10	w.	J. D. Stead.
Platte Canyon	Jefferson	5,492	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Norman Steele.
St. Cloud	Larimer	7,750	....	.....	.....	.....	.....	.....	.....	.....	0.64	.....	0.27	7.0	5	8	12	10	nw.	Mrs. Phebe A. Campton.
Sedgwick	Sedgwick	3,573	1	39.8	.....	81	3	— 4	17	58	0.79	.....	0.35	12.0	4	9	14	7	se.	Dr. Edwin Lewis.
Sill Mine	Clear Creek	11,500	....	23.8	.....	48	3†	— 5	14	31	2.41	.....	0.82	31.0	9	14	4	12	w.	Chas. F. Deininger.
Spicer (near)	Larimer	8,700	....	.....	.....	.....	.....	.....	.....	.....	1.24	.....	0.60	16.0	6	9	9	12	sw.	Frank W. Murphy.
Waterdale	....do	5,206	14	40.4	.....	76	3	4	16	43	1.13	+ 0.63	0.66	10.5	6	.....	.....	.....	.....	P. H. Boothroyd.
Westlake	Boulder	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. E. Richardson.
Wray	Yuma	3,512	15	41.2	.....	85	3	5	16†	50	1.92	+ 1.53	1.00	7.0	9	10	11	9	s.	J. C. Tuomey.
Yuma	....do	4,138	18	.....	.....	.....	.....	.....	.....	.....	0.92	+ 0.46	0.50	6.0	3	12	2	16	se.	Geo. W. Custer.
Nebraska.																				
Ainsworth	Brown	2,521	4	37.4	.....	80	6	4	17	50	2.86	.....	.....	25.4	6	0	22	8	sw.	John M. Cotton.
Albion	Boone	1,747	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. A. Pittenger.
Alliance	Boxbutte	3,968	14	.....	.....	.....	.....	.....	.....	.....	1.40	+ 0.99	0.60	14.0	6	11	11	8	e.	Agent, C. B. & Q. R. R.
Alma	Harlan	1,939	12	42.4	+ 2.3	82	3	1	18	47	2.57	+ 1.65	0.80	5.0	8	13	9	8	n.	W. A. Sharpnack.
Anoka	Boyd	.....	3	33.8	.....	84	4	0	18	56	1.30	.....	0.50	16.0	5	6	18	6	nw.	W. Whitla.
Arcadia	Valley	2,186	....	.....	.....	.....	.....	.....	.....	.....	2.10	.....	0.70	14.0	5	16	7	7	nw.	J. L. Owen.
Ashland	Saunders	1,100	19	43.4	+ 4.3	78	4†	10	18	37	7.66	+ 6.63	2.36	7.5	11	11	12	7	sw.	A. S. von Mansfelde.
Ashton	Sherman	2,061	....	.....	.....	.....	.....	.....	.....	.....	0.57	— 0.05	0.29	12.0	4	13	7	10	sw.	Fred Rein.
Atkinson	Holt	2,108	4	36.2	.....	83	4	0	17	48	1.21	.....	1.00	3.0	5	15	9	6	nw.	C. J. Wilson.
Auburn	Nemaha	1,051	17	47.0	+ 6.2	82	5	14	18	41	9.07	+ 7.56	3.64	4.0	10	11	1	18	s.	J. R. Huffman.
Aurora	Hamilton	1,792	....	40.6	+ 2.3	76	3†	5	17	47	3.31	.....	0.95	6.0	6	14	10	6	n.	Agent, C. B. & Q. R. R.
Beatrice	Gage	1,235	18	45.7	+ 6.3	78	4	15	17	39	6.80	+ 5.63	2.32	.....	11	16	0	14	sw.	W. S. Waxham.
Beaver City	Furnas	2,147	18	41.3	+ 1.1	81	3	8	18	40	2.40	+ 1.66	1.07	10.0	4	9	11	10	se.	T. M. Davis.
Bellevue	Sarpy	1,210	5	44.2	.....	76	4†	12	17	35	9.95	.....	3.05	3.2	12	12	4	14	nw.	Bellevue College.
Bertrand	Phelps	2,515	....	.....	.....	.....	.....	.....	.....	.....	1.23	.....	0.56	12.0	6	.....	.....	.....	.....	W. F. Dobbin.
Blair	Washington	1,122	12	43.0	+ 3.8	79	5	7	18	37	7.38	+ 5.88	1.98	8.4	10	11	12	7	nw.	H. H. Hahn.
Bloomfield	Knox	.....	....	38.0	.....	80	4	3	17	45	1.30	.....	0.40	14.0	5	13	10	7	sw.	J. M. Barnard.
Bluehill	Webster	1,967	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, C. B. & Q. R. R.
Bradshaw	York	1,715	....	.....	.....	.....	.....	.....	.....	.....	4.25	+ 2.99	1.48	8.0	5	10	12	8	.....	E. C. Roggy.
Bridgeport	Cheyenne	3,800	13	37.9	+ 0.9	76	3	1	17	53	1.30	+ 0.87	0.50	13.0	4	.....	.....	.....	se.	R. H. Willis.
Brokenbow	Custer	2,477	15	36.0[d]	— 0.5	80[d]	3†	— 4[d]	16	54[d]	1.07	+ 0.52	0.67	15.5	3	22	0	8	.....	Agent. C. B. & Q. R. R.
Burchard	Pawnee	1,377	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
Burge	Cherry	2,674	1	37.4	.....	80	4	2	16	57	2.15	.....	.....	14.5	....	14	3	13	nw.	H. A. Davis.
Burwell	Garfield	2,180	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, C. B. & Q. R. R.
Cairo	Hall	1,951	....	.....	.....	.....	.....	.....	.....	.....	2.20	.....	.....	18.0	.....	.....	.....	.....	.....	Elliott Harrison.
Callaway	Custer	2,555	17	42.6	+ 5.4	84	5	— 3	18	58	2.28	+ 1.66	1.00	17.0	3	11	10	9	s.	J. H. Evans.
Cambridge	Furnas	2,258	2	41.5	.....	83	3	4	18	48	2.19	.....	1.20	10.5	4	17	3	10	sw.	Chas. Jensen.
Canton (near)	Sioux	.....	1	34.9[c]	.....	75[c]	3†	— 3[c]	16	59[c]	0.91	.....	0.59	11.0	3	.....	.....	.....	nw.	A. E. Hann.
Columbus	Platte	1,442	15	40.4	+ 3.2	81	3†	— 1	18	46	2.73	+ 1.94	0.88	13.0	8	14	4	12	nw.	C. C. Gray.
Cozad	Dawson	2,496	....	.....	.....	.....	.....	.....	.....	.....	1.40	.....	0.65	16.0	3	21	1	8	s.	A. A. Luttin.
Creighton	Knox	1,609	12	39.3	+ 7.5	80	4	4	16	45	2.06	+ 1.00	1.44	14.0	6	14	4	12	nw.	C. H. Blood.
Crete	Saline	1,368	....	43.9	+ 5.3	79	4†	13	18	37	6.52	.....	3.00	2.0	6	14	5	11	n.	Doane College.
Culbertson	Hitchcock	2,565	7	42.5	.....	80	12	12	14†	49	2.17	.....	0.80	13.5	4	12	2	16	w.	J. H. Corrick.
Curtis	Frontier	2,553	14	.....	.....	.....	.....	0	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	ne.	Dr. S. R. Razee.
David City	Butler	1,619	19	41.6	+ 5.8	75	4†	9	18	33	4.81	+ 3.79	1.21	12.5	13	8	11	11	se.	S.Clingman.

TABLE 1.—*Climatological data for November, 1909. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Nebraska—Cont'd.																				
Dawson	Richardson	945	13	46.9	+ 4.0	81	5	15	18	41	9.49	+ 7.89	3.33	1.5	11	13	5	12	nw.	Mrs. E. I. Atkinson.
Dubois	Pawnee	1,074	....								9.98		4.00		11	9	4	17	s.	O. M. Backus.
Duff	Rock	....	....																	Dewitt Eager.
Edgar	Clay	1,722	....								2.98		1.18	5.5	6	9	11	10		G. W. Ferree.
Ellis	Gage	1,430	....								7.60				7					D. J. Wood.
Elmcreek	Buffalo	2,268	....								1.85		1.04		3					E. L. Sutton.
Elsie	Perkins	3,382	....								0.87		0.30	14.5	4					J. L. Brittain.
Enderslake	Brown	....	1	41.3		85	7	2	15	64	0.30		0.15		3	9	6	15	sw.	C. D. Langley.
Endicott	Jefferson	1,288	....								2.50		1.20		3	17	1	12	e.	Agent, C. B. & Q. R. R.
Ewing	Holt	1,888	3	37.4		83	6	3	17	49	1.25		0.40	12.5	6					G. H. Benson.
Fairbury	Jefferson	1,316	14	46.6	+ 6.6	84	4	10	17	45	6.73	+ 5.73	3.25	2.0	9	13	7	10	ne.	W. F. Cramb.
Fairmont	Fillmore	1,641	15	42.2	+ 4.4	79	5	11	17	40	4.36	+ 3.44	1.56	4.2	7	15	0	15	s.	Agent, C. B. & Q. R. R.
Fort Robinson	Dawes	3,764	27	37.3	+ 1.9	77	5	− 3	16	49	1.02	+ 0.62	0.55	10.2	5	14	6	10	w.	Post Surgeon.
Franklin	Franklin	1,820	15	41.4	+ 2.7	80	3	3	18	41	3.90	+ 3.16	1.75	6.0	5	20	1	9	ne.	D. T. Shoemaker.
Fremont	Dodge	1,203	27	42.0	+ 5.3	78	5	8	18	40	7.01	+ 5.89	2.10		10	11	9	10	se.	Ernest Hahn.
Fullerton	Nance	1,629	3	40.0[a]		86[a]	6	− 3[a]	17	51[a]	4.03		0.80	15.0	10	11	10	9	nw.	Dr. F. W. Johnson.
Geneva	Fillmore	1,633	17	43.0	+ 4.5	80	4	14	17†	42	4.65	+ 3.64	1.69	5.0	9	11	9	11	nw.	F. M. Flory.
Genoa	Nance	1,584	34	40.2	+ 4.9	78	4	1	18	43	1.79	+ 1.00	0.90	13.0	10	9	10	11	se.	F. W. Parsons.
Gordan	Sheridan	3,550	1	34.8[d]		79[d]	5†	− 5†	17	61[d]	1.75		1.00	18.0	2				nw.	G. F. Williams.
Gosper	Gosper	....	....								1.47		0.55	8.0	5	17	4	9	n.	E. H. Stoll.
Gothenburg	Dawson	2,557	15	40.3	+ 2.0	83	3†	− 2	18	50	2.27	+ 1.47	0.84	16.4	4	16	4	10	nw.	W. J. Bartholomew.
Grand Island	Hall	1,860	17	41.2	+ 3.8	78	3	9	18	40	0.97	+ 0.17	0.70		6	10	7	13	s.	E. A. Barnes.
Grant	Perkins	3,405	5	38.5[k]		80[k]	3	0[k]	16	49[k]										Cyrus Carver.
Greeley	Greeley	2,021	2	40.5		79	4	2	14	46	2.47		1.00	20.8	7	9	12	9	se.	W. E. Morgan.
Guderlock	Webster	1,646	....								4.07		1.25	5.0	8	4	5	11	n.	J. S. Marsh.
Haigler	Dundy	3,258	....								2.05		0.90	7.0	5	8	11	11		Agent, C. B. & Q. R. R.
Halsey §	Thomas	2,695	6	40.8		82	4	3	17	51	1.19		0.49	15.0	6	5	18	7	s.	U. S. Forest Service.
Hartington	Cedar	1,209	18	37.9	+ 4.0	79	3	5	18	46	2.70	+ 1.56	0.90	15.5	7	7	9	14	nw.	D. E. Ewing.
Harvard	Clay	1,812	19	39.4	+ 2.8	73	4	9	18	35	2.30	+ 1.57	0.78		7	11	9	10	nw.	Dr. J. T. Fleming.
Hastings	Adams	1,932	16	40.4	+ 1.9	78	4	1	17	35	3.32	+ 2.55	1.22	11.0	5	20	1	9	nw.	Agent, C. B. & Q. R. R.
Hayes Center	Hayes	....	5	39.6		81	4	5	16	53	3.50		1.10	20.0	4	17	7	6	nw.	C. A. Ready.
Hay Springs	Sheridan	3,821	22	35.7	+ 2.5	78	4	− 3	16	55	2.05	+ 1.42	0.60	18.0	6	7	13	10	nw.	A. Kadlecek.
Hebron	Thayer	1,458	24	43.6	+ 4.4	80	3	11	14	42	8.47	+ 7.19	4.00	T.	6					C. M. Easton.
Hendley	Furnas	2,231	....								2.60		0.65	10.0	6					F. A. Jones.
Holdrege	Phelps	2,324	15	40.8	+ 2.7	88	3	8	17	52	2.58	+ 1.89	0.60	15.0	5	18	0	12	nw.	Agent, C. B. & Q. R. R.
Hooper §	Dodge	1,228	12	41.4	+ 3.9	79	3†	8	18	39	6.43	+ 5.04	1.99	11.5	11	10	13	7	s.	T. W. Lyman.
Imperial	Chase	3,278	20	39.6	+ 2.0	80	3	2	18	50	2.46	+ 1.86	0.92	17.0	4	9	9	12	nw.	Robt. Malcolm.
Kearney	Buffalo	2,146	17	42.2[d]	+ 3.5	83[d]	3	− 1[d]	17	48[d]	1.72	+ 1.08	0.66	12.2					nw.	N. C. Dunlap.
Kimball	Kimball	4,697	21	37.2	+ 1.3	75	3	3	16	45	0.45	+ 0.03	0.40	4.5	2	14	9	7	w.	F. J. Bellows.
Kirkwood	Rock	....	14	38.0[a]	+ 3.6	83[a]	4	0[a]	17	46[a]	1.90	+ 1.26	1.10	19.0	4	15	6	9	s.	Mrs. C. Arter.
Kowanda	Denell	....	....								0.40		0.20		4					Geo. W. Hulse.
Leavitt §	Dodge	1,228	....																	W. T. Scilley.
Lexington	Dawson	2,385	20	40.6	+ 3.4	81	5	0	18	48	1.15	+ 0.57	0.58		4	20	1	9	ne.	Rob't Chadwick.
Lincoln	Lancaster	1,189	24	44.2	+ 6.2	80	4	15	18	39	7.14	+ 6.29	3.29	5.9	13	7	5	18	s.	U. S. Weather Bureau.
Lodgepole	Cheyenne	3,820	....																	
Loup	Sherman	2,067	....	40.2	+ 3.3	78	4	1	16	46	1.58	+ 0.96	0.70	12.0	3	16	4	10	nw.	
Loyal	Custer	....	....								1.50		1.20	15.0	2	16	6	8	s.	C. H. Cass.
Lynch	Boyd	....	17								2.03	+ 1.34	0.80	20.0	5	20	4	6	sw.	S. W. Lightner.
McCook	Redwillow	2,506	9	40.0	+ 2.3	85	3	− 1	18	54	2.02	+ 1.35	0.59	14.0	4	15	3	12	w.	C. G. Coglizer.
McCool Junction	York	1,575	....								3.97		1.15		7					L. L. Slagle.
Madison	Madison	1,585	15	40.1	+ 3.9	75	4†	4	18	39	2.80	+ 1.87	0.90	15.0	7	13	7	10	se.	Dr. F. A. Long.
Marquette	Hamilton	1,830	....								1.83		0.66	12.6	9					John Ellis.
Mason City	Custer	2,257	....								1.30			12.0						J. A. Amsberry.
Minden	Kearney	2,169	26	40.2	+ 3.0	78	3†	3	17	39	2.34	+ 1.38	0.60	15.2	9	11	8	11	s.	Joel Hull.
Mitchell	Scottsbluff	....	1	37.5		77	6	−10	16	54	0.69		0.43	6.9	5	10	12	8	nw.	U.S. Reclamation Service
Monroe	Platte	1,525	....								2.69		0.89	13.5	8	11	10	9		Wm Webster.
Nebraska City	Otoe	941	27	46.6	+ 7.8	80	5	15	17†	42	6.79	+ 5.70	4.00	3.0	8	12	5	13	s.	Agent, C. B. & Q. R. R.
Norfolk	Madison	1,532	24	39.6	+ 5.3	83	4	0	18	49	2.74	+ 1.98	0.62	13.0	8	18	3	9	s.	Dr. P. H. Salter.
North Loup	Valley	1,961	21	39.6	+ 3.4	81	4	1	18	51	1.26	+ 0.68		14.0	4	15	7	8	n.	W. G. Rood.
North Platte	Lincoln	2,841	35	38.6	+ 3.5	80	4	2	17	49	2.24	+ 1.84	1.18	17.9	6	13	6	11	w.	U. S. Weather Bureau.
Oakdale	Antelope	1,722	21	36.8	+ 2.8	74	3†	0	18	40	2.02	+ 1.33	0.70	13.2	8	10	12	8	s.	G. S. Clingman.
Odell	Gage	1,278	....								5.55		3.00	1.0	7	10	5	15		Agent, C. B. & Q. R. R.
Omaha	Douglas	1,103	39	43.9	+ 6.2	77	5	14	17	32	6.24	+ 5.18	2.53	5.2	13	7	10	13	s.	U. S. Weather Bureau.
Ord	Valley	2,062	....								1.36	+ 0.74	0.71		3	6	16	8	s.	James Milford.
Orleans	Harlan	1,993	....								2.28		0.88	7.0	5					James McGeachin.
Osceola	Polk	1,644	....	40.8[c]		74[c]	4	1[c]	13†	48[c]	1.92		1.22	2.0	3				s.	
Palmyra §	Otoe	1,142	11	44.5	+ 4.7	84	5	16	17	....	7.84	+ 6.34	5.85	1.5	8	13	11	6	s.	Thos. Coles.
Pawnee City	Pawnee	1,175	6	46.4		83	5	11	18	46	8.35		3.87	2.0	9	16	4	10	s.	F. A. Barton.
Plymouth	Jefferson	1,419	5	43.9		81	4	15	17	42	6.13		2.70		8	7	12	11	s.	John Ruppel.
Purdum	Blaine	....	8	38.9		81	4	− 2	17	52	1.99		1.00	19.0	8	19	3	8	nw.	T. C. Jackson.
Ravenna	Buffalo	2,028	20	40.8	+ 3.7	80	4†	3	17†	50	1.77	+ 1.13	0.70	14.5	4	13	10	7	nw.	Erastus Smith.
Redcloud	Webster	1,687	13	44.0	+ 5.1	82	4	9	17	48	3.28	+ 2.47	0.95	4.5	11	16	5	9	nw.	C. S. Ludlow.
St. Libory	Howard	1,887	....								1.99		1.00	17.0	6	19	3	8	nw.	W. I. Meader.
St. Paul	do	1,796	15	40.1	+ 1.4	78	4	0	18	43	2.30	+ 2.36	1.14	19.0	7	19	4	7	nw.	Paul Anderson
Santee	Knox	....	22	40.8	+ 5.4	87	4	7	17	50	1.97	+ 1.10	0.80	19.6	7	14	9	7	nw.	E. G. Kendall.
Sargent	Custer	....	1								0.80		0.40	8.0	3					J. L. Ferguson.
Schuyler	Colfax	1,357	....								2.58		0.75	11.5	6	2	6	22	nw.	Agent, C. B. & Q. R. R.
Scottsbluff	Scottsbluff	4,662	3	39.0		74	3	− 2	16	49	0.72		0.32	7.8	4	12	11	7	w.	A. B. McCoskey.
Seward	Seward	1,435	....	43.0	+ 4.0	78	2†	12	16†	45	4.61		1.75	4.0	7	12	9	9	se.	Agent, C. B. & Q. R. R.
Sheridan	Wheeler	....	....								0.70		0.40	1.0	2	19	6	5	nw.	J. C. Harris.
Sidney	Cheyenne	4,090	....								0.51		0.20	5.5	7	21	2	7	sw.	J. P. Fischer.
Springview	Keyapaha	....	18	38.0	+ 2.6	82	4	5	16	44	2.00	+ 1.54	0.60	20.0	6	7	11	12	nw.	C. L. Phelps.
Stanton	Stanton	1,472	15	40.4	+ 4.8	79	4	− 5	18	46	2.85	+ 1.92	0.80	17.0	7	15	9	6	sw.	Alfred Pont.
Stratton	Hitchcock	2,804	....								2.50	+ 1.70	1.00	16.0	4					Stella Vennum.
Superior	Nuckolls	1,574	....								4.10	+ 3.22	1.30		5					Agent, C. B. & Q. R. R.
Syracuse	Otoe	1,059	....								8.35	+ 7.18	3.70		10	12	0	18		Do.
Tablerock	Pawnee	1,023	....								8.57	+ 6.93	3.54	2.0	11	14	7	9	s.	E. D. Howe.
Tecumseh	Johnson	1,113	22								7.83	+ 6.56	3.00		5	10	12	8	s.	Agent, C. B. & Q. R. R.
Tekamah	Burt	1,060	19	39.9	+ 2.3	78	4†	5	18	43	4.50	+ 3.19	2.13	7.0	12	11	10	9	s.	A. D. Nesbit.
Turlington	Otoe	1,214	18	44.0	+ 5.2	79	4†	14	17†	38	7.38	+ 6.06	4.54	4.0	11	13	6	11	nw.	W. N. Hunter
University Farm §	Lancaster	....	8	45.0		80	4	11	18	42	8.00		2.93	2.0	7	11	9	10		S. W. Perin.
Valentine	Cherry	2,613	21	36.0	+ 2.3	78	6	2	17	47	1.63	+ 0.90	0.73	16.4	7	9	14	7	w.	U. S. Weather Bureau.
Wahoo	Saunders	1,187	....								5.65		1.93	8.0	7	12	8	10	sw.	Wm. T. Mauck.
Wakefield	Dixon	1,387	13	38.2	+ 1.4	74	4	2	18	37	3.05	+ 1.99	1.00	10.0	7	13	9	8	nw.	I. H. Weaver.
Wallace	Lincoln	3,116	....								0.92		0.60	9.0	3	20	3	7	s.	Agent, C. B. & Q. R. R.
Walthill	Thurston	....	....	40.3		84	2	5	16	45	2.85		1.00	14.0	6					Harry L. Keefe.
Watertown	Buffalo	2,299	....								1.11		0.44	5.0	4	11	11	8	nw.	R. E. Swift.

TABLE 1.—*Climatological data for November, 1909. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Nebraska—Cont'd.																				
Wauneta	Chase										1.65	.....	1.00	18.0	5					C. D. Fuller.
Weepingwater	Cass	1,080	3	43.7	.....	81	5	12	18†	45	9.20	.....	2.84	2.5	11	16	2	12	nw.	S. W. Orton.
Westpoint	Cuming	1,313	13	39.6	+ 0.9	82	3	1	18	46	2.83	+ 1.74	0.81	10.0	7	12	6	12	s.	J. C. Elliott.
Wilber	Saline	1,325									7.72	.....	3.40	1.0	5	8	6	16	s.	Agent, C. B. & Q. R. R.
Wisner	Cuming	1,380									2.01	.....	1.02	16.0	6	11	8	11	nw.	Aoff & Deily.
Woodlawn	Lancaster	1,186									7.77	.....	1.73	4.0	11	8	14	8	nw.	H. C. Kendall.
York	York	1,606	17	42.2	+ 3.9	81	4	7	18	44	3.84	+ 3.00	1.04	5.8	10	13	7	10	s.	H. T. Gianque.
Iowa.																				
Afton‖	Union	1,212	14	45.0	+ 8.2	76	5	13	17†	32	5.20	+ 3.97	1.83	3.5	10	8	6	16	sw.	N. W. Rowell.
Allerton ‖	Wayne	1,513	17	46.8[c]	+ 6.2	80[c]	5	14[c]	18	40[c]										Mrs. Geo. Shriver.
Alta‖‖	Buena Vista		6	37.8	.....	74	4	4	17	37	6.13	.....	1.90	11.0	14	9	8	13	s.	David E. Hadden.
Alta (near)	do													12.2	13					W. J. Minard.
Alton	Sioux	1,305	3	37.6	.....	72	4	1	18	36	3.94	.....	1.18	16.5	8	15	5	10	nw.	W. S. Slagle.
Atlantic	Cass	1,164	17	42.9	+ 7.5	78	5	10	18	37	8.66	+ 7.68	3.44	5.0	12	6	6	18	se.	Thos. H. Whitney.
Audubon‖	Audubon	1,301	15	42.1	+ 6.9	75	5	10	17	33	8.57	+ 7.23	3.77	9.5	12	13	3	14	nw.	Geo. E. Kellogg.
Bedford‖	Taylor		8	45.0	.....	77	5	10	18	38	4.21	.....	0.86	1.2	11	12	3	15	s.	E. E. Healy.
Chariton‖	Lucas	1,042	13	46.0	+ 7.3	81	5	12	18	38	4.74	+ 3.44	1.30	1.0	8	8	7	15	se.	C. C. Burr.
Clarinda	Page	1,009	18	44.3	+ 6.5	79	5	13	18	42	5.74	+ 4.58	1.95	5.0	12	11	3	16	s.	H. S. Van Sandt.
Corning‖	Adams	1,117	16	44.1	+ 6.9	74	5	12	17	38	5.62	+ 4.42	2.24	4.0	10	9	9	12	se.	Jerome Smith.
Corydon‖	Wayne	1,101	15	47.9	+ 9.2	82	5	13	18	38	4.36	+ 2.01	1.01	T.	9	13	2	15	s.	Clara Miller.
Creston	Union	1,312	3	43.2	.....	79	5	12	18	40	4.92	.....	1.70	1.0	10	16	2	12	sw.	Edgar Stovall.
Cumberland	Cass		9								3.36	.....	1.90	3.0	7	15	4	11	s.	J. H. Reppert.
Denison	Crawford	1,180	13	40.1[a]	+ 4.5	77[a]	5	5[a]	18	42[a]	8.13	+ 0.75	2.74	6.1	11					W. C. Van Ness.
Elliott	Montgomery		3	43.2	.....	78	5	12	18	39	7.78	.....	3.30	6.0	11	10	7	13	s.	Henry Barnes.
Hancock‖	Pottawattamie	1,113	2	43.0	.....	78	6	10	18	36	8.38	.....	3.00	7.0	8	11	1	18	nw.	G. C. Rogers.
Harlan‖	Shelby	1,192	9	41.4	.....	78	5	6	18	39	9.85	.....	4.08	8.0	11	11	6	13	s.	C. A. Reynolds.
Hopeville	Clarke		17	45.8	+ 9.1	79	5	13	18	35	4.60	+ 3.51	1.39	1.0	10	8	9	13	s.	M. T. Ashley.
Inwood‖	Lyon	1,474	4	35.6	.....	77	5	− 3	23	37	3.08	.....	1.38	12.3	12	16	5	9	s.	F. B. Hanson.
Lamoni	Decatur			47.0	.....	75	5	13	18	33	3.66	.....	1.01	1.0	14	13	0	17	nw.	T. J. Fitzpatrick.
Larrabee	Cherokee	1,266	17	37.0[a]	+ 4.1	71	6	1[a]	18	35[a]	5.92	+ 4.90	1.40	24.0	13	9	8	13	nw.	H. B. Strever.
Le Mars‖	Plymouth	1,224	12	38.4	+ 3.9	70	6	5	18	37	4.35	+ 3.12	1.12	13.0	9	10	8	12	nw.	G. A. C. Clarke.
Lenox‖	Taylor	1,250	13	45.0	+ 7.1	75	5	12	18	31	4.42	+ 3.20	1.40	2.5	11	13	5	12	s.	J. L. Hurley.
Leon	Decatur	1,120	6	47.8	.....	76	6	14	18	38	3.50	.....	0.95	1.5	9	7	7	16	s.	Morris Gardner.
Little Sioux‖	Harrison		4	41.4	.....	79	5	3	17	41	5.93	.....	1.70	7.5	9	11	2	17	se	Geo. H. Gibson.
Logan‖	do	928	42	42.2	+ 6.3	78	3†	9	17	42	8.29	+ 7.04	2.34	T.	10	8	12	10	nw.	Glen H. Stern.
Mt. Ayr‖	Ringgold	1,236	15	46.8	+ 7.9	79	5	14	17†	36	4.29	+ 2.93	0.91	1.8	15	9	6	15	sw.	A. F. Beard.
Odebolt‖	Sac	1,356	10	40.3	+ 3.8	76	5	5	18	35	7.18	+ 6.04	2.00	16.5	9	13	6	11	.....	E. Starner.
Onawa‖	Monona	1,051	8	41.6	.....	76	3†	10	18	37	5.34	.....	1.25	12.5	12	13	4	13	se.	C. G. Perkins.
Pacific Junction‖	Mills	960	9	42.4	.....	76	4	11	18	41	9.74	.....	3.04	4.1	11	8	11	11	s.	H. H. McCartney.
Rock Rapids‖	Lyon	1,358	9	37.8	.....	71	6	5	17†	42	2.60	.....		20.0	4					W. C. Wyckoff.
Sheldon‖	O'Brien	1,422	8	37.8	.....	76	6	0	18	38	5.05	.....	1.30	18.5	9	11	6	13	nw.	Dr. A. W. Beach.
Sibley	Osceola	1,212	15	34.8[a]	+ 2.8	75	4†	2[a]	17†	40[a]	4.02	+ 3.03	1.62	9.2	10				nw.	Francis C. Doolittle.
Sioux Center‖	Sioux		9	36.2	.....	70	6	4	17†	30	2.47	.....	1.00	9.5	8	11	5	14	s.	J. Deruyter.
Sioux City	Woodbury	1,135	20	39.3	+ 5.0	75	4	10	18	34	3.02	+ 2.05	1.33	12.1	15	7	8	15	se.	U. S. Weather Bureau.
Thurman‖	Fremont		11	44.0	+ 5.4	77	6	10	18	39	10.33	+ 9.03	3.96	4.0	12	7	7	16	nw.	C. R. Paul.
Washta‖	Cherokee	1,157	10	37.7	.....	77	4	− 4	18	45	5.18	+ 4.21	2.18	10.5	10	8	9	13	s.	H. L. Felter.
Woodburn‖	Clarke	961	9	47.2	.....	80	5	11	18	44	4.66	.....	1.30	3.0	11	11	5	14	sw.	C. B. McDonough.
Kansas.																				
Abilene	Dickinson	1,157	14								5.44	+ 4.44	2.88	.....	6	9	9	12	s.	J. H. Sherman.
Agricultural College	Riley	1,100	51	49.8	+ 8.7	87	4	18	17	52	7.98	+ 6.67	3.10	0.0	10	13	6	11	nw.	J. O. Hamilton.
Alton	Osborne	1,651	7	45.4	.....	83	4	14	17	47	2.36	.....	0.50	1.1	9	12	8	10	s.	H. A. Storer.
Atchison	Atchison	973	18	50.0	+ 8.2	82	5	19	17	32	4.40	+ 3.13	1.80	T.	8	13	5	12	s.	M. F. Troxell.
Baker	Brown	1,182	9	46.5	.....	80	5	16	18	38	7.75	.....	1.90	T.	9	8	0	22	s.	E. A. Bastien.
Beloit	Mitchell	1,383	14																	W. H. Houghton.
Blakeman	Rawlins	2,894	1	41.4	.....	84	5	8	17	58	2.47	.....	0.89	12.0	6	18	2	10	nw.	C. L. Henderson.
Blue Rapids	Marshall	1,105	3																	M. Norton.
Centralia	Nemaha	1,256		46.6[a]	.....	80[a]	3†	15[a]	17	38[a]	8.51	.....	2.90	0.0	8	15	0	10	s.	L. E. Hazen.
Chapman	Dickinson	1,123	5	48.0	.....	87	4	19	17	50	7.02	.....	2.60	T.	8	16	3	11	s.	R. McShea.
Clay Center	Clay	1,203	8	47.5	.....	88	4	10	16	51	6.56	.....	2.60	T.	6	9	2	19	s.	O. L. Slade.
Colby	Thomas	3,138	18	42.9	+ 3.7	85	2	8	16	53	2.26	+ 1.75	0.76	8.5	5	15	5	10	sw.	R. M. Chelf.
Concordia	Cloud	1,398	25								4.35	+ 3.41	3.00	8.0					s.	U. S. Weather Bureau.
Densmore	Norton	2,200		44.0	.....	86	3	9	18	40	2.70	.....	1.00	8.0	7	16	4	10	sw.	F. S. Griffith.
Dresden	Decatur	2,731	15	43.9	+ 2.2	83	5	8	16	45	2.56	+ 1.98	1.12	8.0	6	18	2	10	sw.	Jacob Bock.
Ellsworth	Ellsworth	1,537	5	46.9	.....	86	4	15	16	50	5.30	.....	2.00	T.	8	14	8	8	s.	George Seitz.
Enterprise	Dickinson	1,144	7	49.4	.....	90	3	19	17	57	6.72	.....	2.81		7	12	4	14	s.	G. F. Wagner.
Eskridge	Wabaunsee	1,412	3	49.7	.....	85	3†	19	17	36	6.39	.....	3.05	0.0	8	10	7	13	s.	G. D. West.
Farnsworth	Lane	2,850	8	45.8	.....	84	3†	11	16	52	3.25	.....	1.55	1.8	8	9	3	8	n.	C. M. Jennison.
Ft. Scott	Bourbon	857	13	52.2	+ 6.1	81	4	19	18	39	4.96	+ 2.46	2.15	0.0	9	18	0	12	sw.	E. A. Shaver.
Frankfort	Marshall	1,146	15	47.6	+ 5.8	87	3	16	17	55	9.58	+ 8.37	4.83	0.2	8	9	14	7	sw.	E. C. Dunham.
Garnett	Anderson	950	3			81	4		22		1.98	.....	0.93	0.0	6	10	7	13	s.	J. S. McCartney.
Goodland	Sherman	3,687	3																	G. L. Calvert.
Gove	Gove	2,750	20	48.6	+ 8.8	88	5	15	15	....	2.99	+ 2.40	1.00	5.0	7	15	8	7	se.	Jesse Royer.
Hanover	Washington	1,225	6	47.2	.....	85	4	15	17	46	6.19	.....	4.10	0.6	8	14	3	12	s.	August Jaedicke, jr.
Harrison	Jewell	1,804	8	43.7	.....	81	4	14	17	45	4.46	.....	1.55	1.2	11	19	7	4	s.	Mahlon Tegley.
Hays	Ellis	2,000	21	45.7	+ 5.3	82	3†	14[a]	16†	46[a]	3.55	+ 2.83	1.13	3.0	8	9	13	8	nw.	G. K. Helder.
Hill City	Graham	2,134	1																	L. R. Mort.
Horton	Brown	1,188	20	47.8	+ 6.4	81	4	18	17	34	5.51	+ 4.29	1.82	T.	8	8	7	15	s.	Mrs. S. C. Belden.
Hoxie	Sheridan	2,700	12	42.3[a]	.....	82[a]	5	12[a]	16†	47[a]	2.59	.....	0.90	7.0	7	18	1	10	sw.	C. T. Dallam.
Jewell	Jewell	1,540	4	44.3	.....	84	4	12	17	46	5.12	.....	1.80	2.0	2	16	10	4	s.	C. A. Shinn.
Lawrence	Douglas	874	12	50.8	+ 9.2	75	9	22	17	34	4.79	+ 2.96	2.34	0.0	10	9	8	13	s.	H. P. Cady.
Lebanon	Smith	1,812	11	44.0	.....	79	4	12	16	30	4.90	+ 4.10	1.73	1.0	10	17	3	10	n.	Dr. W. C. Bower.
Lindsborg	McPherson	1,333	3																	J. R. Lynch.
Manhattan	Riley	1,014	19	48.0	+ 5.8	88	5	20	17†	52	7.97	+ 6.76	2.98	T.	9	7	6	17	nw.	Dr. C. P. Blachly.
Mankato	Jewell	1,784		45.8	.....	83	4	14	16	38	4.03	.....	1.08	2.2	11	19	0	11	s.	R. M. Cauthorn.
Minneapolis	Ottawa	1,259	19	46.4[a]	+ 5.6	83[a]	4†	16[a]	16	45[a]	6.37	+ 5.61	2.61	0.5	10	13	4	12	s.	J. L. Steele.
Moran	Allen	1,098	13	53.4	+ 7.7	85	4	21	17	40	4.38	+ 3.04	0.79	0.0	11	11	4	15	sw.	C. J. Norton.
Norton	Norton	2,284	11	44.8	+ 3.9	81	3†	10	16	39	3.54	+ 3.08	1.60	9.5	7	10	13	7	sw.	H. A. Sleffel.
Oberlin	Decatur	2,539	18								2.73	+ 2.10	1.12	12.5	6	16	7	7	se.	I. K. Huber.
Oketo	Marshall	1,194	1	49.0	.....	79	3†	15	17	37	7.45	.....	3.00	0.6	10	9	10	11	s.	J. A. Church.
Olathe	Johnson	1,032	14	51.0	.....	82	4	18	18	35	2.94	.....	1.80	0.0	12	12	2	16	se.	Dr. S. B. S. Wilson.
Osage City	Osage	1,081	9	50.2	.....	83	4	20	18	38	7.68	.....	3.96	0.0	6	14	3	12	n.	W. C. White.
Ottawa	Franklin	926	15	50.4	+ 7.0	85	4	16	18	47	1.84	+ 0.15	0.77	T.	7	10	6	14	se.	Dr. W. J. Norton.
Phillipsburg	Phillips	1,939	16	44.8	+ 4.8	81	3†	10	18	40	2.67	+ 2.11	0.79	3.5	10	12	10	8	se.	N. E. Bailey.
Pleasanton	Linn	862	7	52.2	.....	79	4	20	18	38	2.90	.....	1.30	0.0	8	11	6	13	nw.	B. F. Blaker.
Republic	Republic	1,495	7																	F. B. Potter.
St. Francis	Cheyenne	3,288	1	41.8	.....	84	3	6	16	52	2.00	.....	0.83	9.0	4	9	11	10	s.	J. E. Uplinger.
Salina	Saline	1,227	24	48.2	+ 5.0	80	4	19	16	41	5.86	+ 5.09	2.60	T.	7	18	4	8	s.	Prof. A. W. Jones.

TABLE 1.—*Climatological data for November, 1909. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Kansas—Cont'd.																				
Scott	Scott	2,971	3	47.4	.....	84	4†	15	16	51	3.67	.....	0.81	3.0	6	15	7	8	s.	J. B. Loughran.
Topeka	Shawnee	997	23	49.8	+ 8.1	82	4	22	18	36	5.98	+ 4.72	3.83	T.	9	9	7	14	s.	U. S. Weather Bureau.
Valley Falls	Jefferson	913	10	49.4	+ 8.3	82	3†	19	17	42	5.36	+ 3.82	2.20	T.	9	11	6	13	s.	Miss Nettie Maxwell.
Vinland	Douglas	880	....	50.2	.....	82	3	16	18	41	2.61	.....	1.05	0.0	9	9	7	14	sw.	A. Schick.
Wakeeney	Trego	2,456	5	45.9	.....	81	3	14	16	46	3.74	.....	0.83	2.0	9	19	2	9	s.	A. S. Peacock.
Wallace	Wallace	3,303	39	42.0	.....	84	3	6	17	54	2.55	+ 2.08	1.01	7.0	4	3	15	12	sw.	M. T. Griggs.
Wamego	Pottawatomie	1,002	16	.....	.....	.....	.....	.....	.....	.....	9.08	+ 7.88	6.10	0.0	8	12	5	13	sw.	M. L. Stone.
Missouri.																				
Albany	Gentry	.....	2	.....	.....	.....	.....	.....	.....	.....	2.25	.....	0.95	0.5	6	16	1	13	s.	W. E. Elder.
Amoret	Bates	850	....	54.2	.....	83	4	20	18	43	2.47	.....	1.00	0.0	8	13	2	15	s.	C. L. Glassmire.
Appleton City	St. Clair	853	18	55.6	+10.8	85	5	21	18	39	5.15	+ 2.85	2.15	0.0	6	13	9	8	s.	T. C. Brown.
Arlington	Phelps	895	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. W. Andres.
Arthur	Vernon	767	16	55.5	+11.8	86	6	19	18	47	3.26	+ 1.22	1.30	0.0	5	10	15	5	sw.	J. T. Armstrong.
Avalon	Livingston	.....	24	50.2	+ 6.9	81	5	11	18	36	4.34	+ 2.19	2.48	0.0	7	13	3	14	sw.	F. G. Ashbaugh.
Bagnell	Miller	594	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. S. Brockman.
Bethany	Harrison	881	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Skinner.
Bolivar	Polk	1,070	21	57.4	+11.4	85	4	17	18	49	6.82	+ 4.15	3.44	0.0	9	9	19	2	sw.	E. Waltz.
Boonville	Cooper	600	33	.....	.....	.....	.....	.....	.....	.....	3.56	+ 1.16	0.98	0.0	8	7	4	19	sw.	C. Randecker.
Brunswick	Charlton	651	30	49.8	+ 8.4	81	5	18	18	44	3.83	+ 1.89	1.60	0.0	9	10	3	17	se.	Louis Beneke.
Clinton	Henry	800	7	54.4	.....	87	3	20	18	....	3.95	.....	1.13	0.0	12	14	10	6	s.	Dr. G. W. Menees.
Columbia	Boone	784	18	52.6	+10.2	80	5	18	18	37	5.36	+ 3.05	2.30	T.	12	11	7	12	s.	U. S. Weather Bureau.
Conception ‖	Nodaway	982	24	48.1	+ 7.5	79	4	15	18	32	3.63	+ 2.34	1.40	T.	7	8	7	15	s.	Fr. Adhelm Hess.
Darksville	Randolph	826	18	52.6	+ 9.7	81	5	17	18	35	2.60	+ 0.92	0.85	0.0	6	14	4	12	s.	W. H. Broadelus.
El Dorado Springs	Cedar	750	3	55.7[a]	.....	85[a]	4	18[a]	18	43[a]	4.70[a]	.....	1.33[a]	0.0[a]	6[a]	11[a]	8[a]	10[a]	sw.	Samuel Graham.
Fairport	De Kalb	920	15	.....	.....	.....	.....	.....	.....	.....	4.59	+ 3.17	1.62	0.5	11	9	4	17	sw.	J. W. Lincoln.
Fayette ‖	Howard	725	26	50.9	+ 8.4	80	5	16	18	37	2.36	+ 0.26	1.02	0.0	6	11[c]	2[c]	14[c]	.....	T. Berry Smith.
Fulton	Galloway	818	18	52.4	+ 7.9	82	5	19	18	42	6.07	+ 3.91	2.02	0.0	9	7	15	8	s.	Mrs. Ruth McKinney.
Gallatin	Daviess	803	16	.....	.....	.....	.....	.....	.....	.....	3.85	+ 2.18	1.50	T.	10	14	6	10	sw.	Dr. W. P. Young.
Glasgow	Howard	618	30	.....	.....	.....	.....	.....	.....	.....	3.51	+ 1.66	0.98	0.0	6	8	8	14	se.	J. J. Shaughnessy.
Grant City	Worth	1,130	17	48.0	.....	80	5	14	18	36	4.00	+ 2.66	1.14	0.0	10	12	1	17	s.	W. H. Campbell.
Harrisonville	Cass	912	37	49.7	+ 7.9	79	5	18	18	....	2.49	+ 0.49	1.08	0.0	11	5	5	20	sw.	A. J. Sharp.
Hazelhurst	Livingston	.....	16	.....	.....	.....	.....	.....	.....	.....	2.86	+ 1.15	0.60	T.	12	.....	.....	.....	.....	W. H. Baker.
Hermann	Gasconade	482	35	.....	.....	.....	.....	.....	.....	.....	7.05	+ 4.25	2.76	0.0	12	8	5	17	se.	C. T. Maushund.
Houston	Texas	1,280	17	54.7	+ 9.2	82	3	16	18	41	3.71	+ 1.02	1.40	0.0	6	5	20	5	s.	E. Dempsey.
Huntsville	Randolph	790	6	.....	.....	.....	.....	.....	.....	.....	2.15	.....	0.70	0.0	4	.....	.....	.....	.....	F. H. Hammett.
Jefferson City	Cole	628	27	51.0	+ 7.0	81	7	19	18	46	7.06	+ 4.91	2.90	0.0	9	17	2	11	s.	Miss Emma Swift.
Kansas City	Jackson	963	21	52.0	+10.5	80	3	22	17	30	2.86	+ 1.01	1.30	T.	15	7	8	15	s.	U. S. Weather Bureau.
Kidder	Caldwell	1,017	16	50.6	+ 9.7	80	6	17	18	52	3.69	+ 2.01	1.20	0.0	11	14	5	11	sw.	J. F. Sharp.
Lamonte	Pettis	863	21	52.9	.....	80	4	17	18	40	2.96	+ 0.99	0.92	T.	10	10	10	10	sw.	J. R. Wade.
Lebanon	Laclede	1,265	20	55.6	+10.0	80	3†	18	18	40	4.86	+ 2.32	2.71	0.0	4	16	7	7	s.	M. W. Serl.
Lexington	Lafayette	813	27	50.4	+ 7.2	80	5	19	18	35	2.72	+ 0.76	1.05	T.	8	14	2	14	s.	J. W. Keithley.
Liberty	Clay	864	21	50.7[b]	+ 8.3	82[b]	5	18[b]	17	34[b]	3.19[b]	+ 1.48	1.30[b]	T.	6	14[b]	4	10[b]	s.	J. W. Kyle.
Lockwood	Dade	1,088	14	57.4	.....	82	4	22	17	38	7.53	+ 5.68	3.17	0.0	6	15	8	7	se.	C. S. Crow.
Marshall	Saline	779	18	51.4	+ 9.0	81	5	17	18	35	4.27	+ 2.16	1.10	0.0	10	15	7	8	sw.	W. H. Black.
Marshfield	Webster	1,492	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. J. P. Keller.
Maryville	Nodaway	1,160	19	44.8	+ 6.3	79	5	14	18	47	4.63	+ 3.31	1.48	2.0	10	11	3	16	s.	J. R. Brink.
Mt. Vernon	Lawrence	1,480	33	56.4	+ 9.7	84	4	20	18	40	8.49	+ 5.73	5.50	0.0	9	12	15	3	se.	Dr. O. H. Brown.
Nevada	Vernon	869	15	.....	.....	.....	.....	.....	.....	.....	3.60	+ 1.63	1.16	0.0	7	18	8	4	sw.	C. Jewell.
New Palestine	Cooper	795	17	54.9	+ 9.2	81	5	20	17	33	3.19	+ 1.32	1.24	T.	4	16	5	9	sw.	A. I. Zeigle.
Oregon	Holt	1,113	54	46.6	+ 6.9	76	5	13	18	35	4.41	+ 2.75	2.00	0.5	5	14	3	13	nw.	Tom Curry.
Osceola	St. Clair	738	9	.....	.....	.....	.....	.....	.....	.....	5.39	.....	1.76	0.0	6	13	3	14	nw.	W. E. Matthews.
Parkville	Platte	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. A. D. Wolfe.
Rolla	Phelps	1,092	28	55.6	.....	83	3	19	17†	37	5.28	+ 2.78	2.93	T.	8	13	8	9	sw.	Prof. P. J. Wilkins.
St. Charles	St. Charles	614	31	54.6	+10.2	81	5	20	18	38	5.21	+ 2.44	2.73	0.0	4	11	7	12	s.	L. C. Saeger.
St. Joseph	Buchanan	825	37	50.0	.....	82	3	19	18	36	5.04	+ 3.30	1.54	T.	9	14	3	13	se.	Grant Forbes.
St. Louis	.....	567	39	54.5	+11.1	78	7	24	18	34	4.36	+ 1.48	2.00	0.0	9	10	7	13	s.	U. S. Weather Bureau.
Sublett	Adair	1,000	29	49.0	+ 8.8	79	5	15	16	36	2.00	+ 0.17	2.00	0.0	1	....	15	8	sw.	Errea Spriggs.
Trenton	Grundy	812	14	49.2	+ 7.6	73	5	18	18	81	2.55	+ 0.82	0.60	T.	10	11	2	17	se.	J. H. Flesher.
Unionville	Putnam	1,072	16	47.8	+ 8.5	79	5	14	18	33	4.00	+ 2.29	1.10	T.	9	11	5	14	s.	Geo. W. Davis.
Versailles	Morgan	1,021	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Warrensburg	Johnson	883	30	54.2	+10.1	80	4	19	18	32	1.63	− 0.12	0.59	T.	9	3	14	13	sw.	Prof. S. F. Prince.
Warrenton	Warren	865	19	51.8	+ 9.3	80	4†	18	18	45	7.28	+ 4.73	2.15	0.0	10	3	12	15	s.	John H. Frick.
Warsaw	Benton	700	5	55.2	.....	87	4	18	18	49	5.29	.....	1.14	T.	10	12	11	7	s.	Dr. J. R. Smith.
Wheatland	Hickory	920	17	.....	.....	.....	.....	.....	.....	.....	5.57	+ 3.00	1.35	0.0	8	15	8	7	s.	Mrs. S. A. Jackson.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
‖ § Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖ ‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 6, Missouri Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																																	
Arapahoe	Big Horn															.18												.21			T.		0.39
Barnum	Powder							T.			T.		T.	.04	.25						T.	T.						.22			T.		0.51
Basin	Big Horn																				.37												0.37
Bennett	North Platte									.07			.11	.12							.14	.18						.13			.06		0.81
Cheyenne	South Platte										T.		.36	.08	.07	.04					.07	.05						.06		T.			0.73
Cheyenne Exp. Farm	do																																
Chugwater	North Platte												.25	.10	T.							.10						.05					0.50
Clark	Clark's Fork												.02	.03	.03				T.	.64	T.	.07	.08	.16		.04	.06			T.			1.13
Crystal Lake Reservoir	South Platte												.23																				0.23
Douglas	North Platte													.10								.15										.12	0.37
Dubois	Big Horn														.15							T.	.15	.17	.03	.05	.08						0.63
Eaton's Ranch	Tongue										.15		.15	.10							.20												0.60
Echeta	Powder									.10			.03	.20	.10						.32							.07		.11			0.93
Elk Mountain	North Platte										.14					.17						1.31						.31					1.93
Encampment	do										.15			.10	T.	.15					.15	.70	T.	T.	.04			.02					1.31
Ervay	do																																
Filmore	do														.30	.10					.20	.20	.30					.40					1.50
Fort Laramie[1]	do													.20	.50							.20	.66					.10					1.66
Gillette	Powder																																
Granite Canyon	South Platte												.05	.20	.10	.05												.08		.04			0.52
Hunter's Station	Powder							.12			.04	.08		.17	.16						.36	.07					.02						1.22
Hyattville	Big Horn																																
Independence	North Platte									T.			T.	T.	.02	.08						.34					.01	.25					0.70
Kaycee	Powder																																
Kirtley	Niobrara												.16	.11	T.							.31						.16					0.74
Kirwin	Big Horn	T.								.05	T.	T.	.05	.05	.10					.05	1.30	.15	.15	.70	1.20	.30	.40	.20					5.10
Knowles	Belle Fourche										.10		.10	.19	T.						.10							.50					0.99
Lander	Big Horn													.30	.52						T.					.10	.50		T.			1.42
Laramie	North Platte									.02			T.	T.		T.					.17	.09						.01					0.29
Leo	do										.03		.03	.07	.03							.29						.08					0.53
Lolabama Ranch	Clark's Fork												.15		.10						.18	.10		.33		.14				.08			1.08
Lovell	Big Horn													.12	.05	T.					.10						.07			.05			0.39
Lusk[1]	Niobrara																																
Luther	South Platte												.50	T.														T.		T.	T.		0.50
Manville	Niobrara												.10	.12	.17						T.	.20	T.					.30					0.89
Moorcroft	Belle Fourche												.80		.20											.20				.10			1.30
Moore	North Platte												.16	.05	.04	.02						.56						.04					0.87
Newcastle	S. Fork, Cheyenne					T.					T.		.30	.25	T.						.23	.30											1.08
Pathfinder	North Platte																																
Phillips	do												.30	.10	.10	.10						T.						.08					0.68
Pine Bluff	South Platte																																
Powell	Big Horn															T.					.20						.10			.02			0.32
Riverton	do																																
Saratoga	North Platte										.17		.02	.07		.16						.40			T.		.10						0.92
Sheridan, (1)	Tongue					.05	T.				.07	T.	T.	.10	.01	T.					.39	T.		.02		T.	.08	.06			.21		0.99
Sheridan, (2)	do														.10	.20					.64						T.	.16					1.10
Shoshone Dam	Big Horn													.04	.05						.59		.04		.02		.14			.03		0.91
Soldier's Home	Powder							T.						.50	.30						.90							.20					1.90
South Pass City	North Platte										.09	.03		T.	.01	T.					.79	.10	.03	.21	.07	T.	.02	.16					1.51
Thermopolis	Big Horn										.09			.04	.09							T.						.31					0.53
Upton	S. Fork, Cheyenne									.25	.20				.02							.25	.05					.15	.02		.01		0.95
Valley	Big Horn											.03			.02						.60	.04	.20	.30	.29	.08	.39	.11					2.16
Verona	Tongue												.10	.40							.50						.20						1.20
Wiley	Big Horn													T.	.03						.47		T.				.18			T.			0.68
Wyncote	North Platte												.18	.11	T.	.06						.50						.05					0.90
Yellowstone Park	Yellowstone	.01				.01				.14	T.	.06		.04	T.					.02	.03	T.	.14	.16	.05	.39	.08	.02			.01		1.16
(1) Fountain	Madison	.07				T.				.40	.25				.10	T.					.80	T.	.34	.40	T.	.14					.12		3.22
(2) Grand Canyon	Yellowstone										.26	.25									.81			.77		1.66					.10		3.85
(3) Lake Yellowstone	do	.04				.06				.17		.20		.04		.17				.15	.20		.21	.15	.36	.80	.60				.12		3.27
(4) Norris Geyser B.	do	.05				.02					.30			.12							.21					1.06	.35						2.11
(5) Riverside	Madison					.02				.10	2.50	.10		.10						.10	.30		.20	.20	.50	.40				.01		4.83
(6) Soda Butte	Yellowstone																			.10			.30	.25		.50	.40			.18		1.73
(7) Sylvan Pass	Big Horn	.15									.25	.40								.30	.10		.65	.53	.80	.50	.60						4.28
(8) Thumb	Yellowstone	.14								.06	.70	.38				.07				.58	.52		.60	.58	.11	1.05	.54			.06			5.39
(9) Tower Falls	do									T.	.08			.02		T.				T.	.05		.04	.02			.08	.02		.08		0.39
(10) Up. Geyser Basin	Madison										.20				.14				.15				.10										0.59
Montana.																																	
Adams	Yellowstone										T.		.06	.05									T.	.03						T.		0.14
Adel	Missouri						T.			T.	.37	.05	.05	.20							T.		T.		.43		.10			T.		1.20
Agricultural College	Gallatin	.06				.02				T.	.32	.03		.02							.43			.39	.03	.60	.40			.06		2.36
Augusta	Sun River									T.	.12	T.	.30	.20	T.					T.	.03	T.										0.65
Babb[1]	Milk River	.03	.23	.29	.12	T.	.03	T.				.06		.02										.08	.04	.07							0.97
Bald Butte	Missouri	.11	.10				.02			T.	.05	.06		.20	.02					.05	.20		.15	.16	.06	T.				T.			1.18
Big Creek	Yellowstone													.12							.09		.03			.30	.63						1.17
Billings	do										T.	T.		.10	T.						T.					T.	T.	.20					0.30
Boulder Nursery	Jefferson									T.	T.			.20						T.				.54		.08							0.82
Bowen	do	.06	.10									.02		.02						.30	.25	.07	.40	.50	.18	.24							2.14
Bridger	Yellowstone													.02	.03						.04			.05							.10		0.24
Broadview Exp. Stat'n	do										.30	.02	T.	.15							T.					T.	.25				.06		0.78
Browning	Marias																																
Busby	Yellowstone										.32	T.	T.	.09	.08						.29			.05			T.				.10		0.93
Busteed	do																																
Butte	Jefferson					T.				.50	T.		.30	.05					T.	.30			.20	.80	.05	.45	T.			T			2.65
Canyon Ferry	Missouri	.08								T.	.19	T.		.09							T.		T.		.18		.04						0.58
Cascade	do						T.				.25	.06	.03	.31	.05						.08				T.					T.			0.78
Cataract Creek[1]	Jefferson																																
Chessman Reservoir	Missouri	.15	.10				T.				.17	T.	T.	.20	.10						.55		.06	.08	.30	T.	.06				.07		1.84
Chester	do																																
Chinook	Milk River										.08	.17	.07	.16							.13		.11		.04								0.76
Chouteau	Missouri												.10	.20	.05						.05												0.40
Clear Creek	Milk River																																
Clemons	Missouri		.13	T.			T.			T.		T.	.07	.01						.18	T.		.04	.03	.06							0.52
Columbus	Yellowstone																																
Copper	Musselshell	.13						T.			.48	T.	T.	.18	.02					T.			.05		.02	.24	.42			.05			1.59
Crow Agency	Big Horn										.19	.05		.20	.20						.70			T.			.10	.05		.37			1.86
Culbertson	Missouri																																
Cut Bank	Marias				.08	.05						T.	.05	.20																			0.38
Decker	Tongue													.40															.50				0.90
Deep Creek	Missouri									.63	.04			.05							.04		.09	.30	.10	.18	.10						1.53
Delphine	Musselshell										.11	T.	T.	.17	T.					.06			T.	T.	T.	.15	.15			T.			0.64
Denton	Missouri																																
Dillon	Jefferson									.08	.03	.05		.05	.03					T.	.08		.01	.11	T.	.20	.08	.20					0.92
Dirty Creek	Musselshell											.01	T.	.22	T.						T.		.21	.01	.03	.31	.16	T.			T.		0.95
Dry Creek	Missouri	.06								08	.20	.15		.15							.54	.14	.12	1.61	.05	.51	.03						3.64

TABLE 2.—*Daily precipitation for November, 1909. District No. 6*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Montana—Cont'd.																																	
Dry Wolf Camp	Missouri							T.				.15	.10	.01	.15						.23		.04				.12						0.80
E. Gallatin River	Gallatin	.13									.40									.30						.40		.66			T.		1.89
Ekalaka	Little Missouri													.10	.20						.20												0.50
Elkhorn	Jefferson	T.	T.							T.	.15	.02		.05	T.					.01	.65	.01	.10	.40	.12	.05	.15	T.			.03		1.74
Evans	Missouri												T.	.15		T.							T.			.05				.15			0.35
Fallon	Yellowstone		.12		.15		T.					.08		.27	.04					.12			*	.12									0.90
Family	Marias																																
Fish Creek	Jefferson	.12									.19	T.		.13						T.	.42	T.		.53		.50		.72			T.		2.61
Fish Tail Creek	Yellowstone								.14					T.							T.			21		.11		.30			T.		0.76
Flathead Creek	....do	.19									.77	.48		.17							.84		.21	.46	.15	.43	.38					T.		4.08
Forsyth	....do											T.		.15	.10								T.		T.		T.					.15		0.40
Fort Benton	Missouri														.40	.30																	0.70
Fort Shaw	Sun River						T.			T.	.09	.28	.20	.25							.02												0.84
Foster	Big Horn																																
Garneil	Musselshell																																
Glendive	Yellowstone			T.							T.		.20	.15									.09		T.	T.	T.						0.44
Goldbutte	Marias																																
Graham	Powder																																
Grayling	Madison					.03			.41	.19	.09		.04	.03						.04	.09		.20	.37	T.	.11	.18	.06			.03		1.87
Great Falls	Missouri						.07				.23	.18	.07	.21	.05						.14		.06			.02							1.03
Half Moon Pass	Musselshell							T.		.50	T.	.01	.40								.20	T.	.20			.25	.03				.01		1.60
Half Way House	Missouri	.05					.07			.09	.57	.09		.19									.23	1.43	.15	.23	.53						3.63
Harlowton	Musselshell										T.	.05	T.	.30	.20								T.			.10	.40	.45					1.50
Hassel	Missouri	.19										T.		.05					T.	T.		.05	.22		.08	.11							0.70
Havre	Milk River			T.	.01		T.			.02	.11	.30	.09	.16	.05					.06	.06		.14		T.	.01							1.01
Helena	Missouri	.06	T.				T.			.09	T.	T.	T.	.18	T.					.04	.01	T.	.01	T.	.12	T.	T.				T.		0.51
Highwood	....do		.10	.10			T.				.60	.10		T.	T.							.26				T.	T.					1.06
Homepark	Jefferson										.11		.05									.05					.12	.40				0.73
Huntley	Yellowstone														.17						.12							.28			.08	0.65
Jones Canyon	Gallatin	.26					.05			.84	.23	.30		.11						.50			.03	.24	.26	.51	.45					.02	3.80
Jordan	Missouri													.20																			0.20
Kleinsmith Creek	Jefferson		T.							T.	.04	T.		.08	T.						.07		.30	.80	.10	.09	.05				.01		1.54
Lewistown	Missouri										.31	.20	.10	.15							T.			T.		.05	.10						0.91
Livingston	Yellowstone	.03								T.	.17			.02					T.		.22		T.	.23	.05	.45	.40	.09			.07		1.73
Lodge Pole Creek	....do													T.	T.						.25			.48		.18	.36	.58					1.85
Lone Tree	Missouri										.25	.10	.10	.38	.07																		0.90
Lost Horse Creek	Musselshell	.10									.14	T.	T.	.06	.01		.01				.15		.09		T.	.16	.23						0.95
Lubec	Marias																																
Malta	Milk River			*	.02						.07	.01	.15	.10	.06					T.	.02	T.	.15			.22	.04						0.84
Meadow Creek	Madison																																
Melstone	Musselshell																																
Mildred	Yellowstone																																
Miles City	....do										.04	.03	.03	.51	.21							T.	.14		.01		.01				.21		1.19
Mill Creek	....do										.05			T.							.02			.22		.26	.22				T.		0.77
Moore	Missouri							T.				.53	.30	.17	.02						T.	T.	T.	T.	T.	T.	.26				T.		1.28
Mudd Creek	Jefferson						.07		.13	.10	T.		.05	.05							.31		.06	.16	.03	.42	.05			.12	.02		1.57
Norris	Madison							.07			.10	.02		.05	T.						.34		.02	.33		.26	.21	.30			.01		1.71
Nye	Yellowstone						T.				.25			.15							.35		.50	.69	.19	.17	.10			.02			2.57
Olsen Creek	Jefferson	.15								T.	.35			.11						.08			.05	.02	.21	.07				T.		1.07
Pipestone Pass	....do	.18			T.						T.		.20								.10	.20	.10								T.		0.60
Poplar	Missouri	T.	.05	.10	T.		T.			T.			.34							.15				T.									0.64
Raymond	....do																																
Reber's Ranch	Yellowstone						.03				T.	T.		.08	.03						.09			.20		.01	.03	.18			.11		0.76
Red Lodge	....do										.80		.90								.90		.10	.30		.80	.70	.10					4.80
Reese Creek	Gallatin	.20								T.	.23	T.		.05						.02	.40			.20	.02	.35	.42						1.72
Renova	Jefferson	.03									.04		.40								.37		.06	.31							T.		1.54
Rimini	Missouri	.21	.15								.30			T.									T.		.07	.37			T.				0.74
Ryegate	Yellowstone											T.	T.		T.																		
Sedan	....do	.08								.02	.19	.10		.05	.01				T.	.45			.10	.34	.02	.44	.29	.01			.01		2.11
Springbrook	....do																																
Stearns	Missouri			.23						.40					.24					.10				.75									1.72
Toknall	Yellowstone										T.	T.		.40								T.	.10			T.					T.		0.50
Toston	Missouri																																
Townsend	....do																																
Trail Creek	Yellowstone	.15									.35	.01	.08	.06	.05						.45		.01	.45	.02	.01	.40				.03		2.09
Utica	Missouri											.06	.04	.02												.07	.11						0.30
Valentine	Musselshell									.09	.04	.06	.13								T.	T.	T.	.02		T.	.10				T.		0.44
Virginia City	Jefferson & Madison										.15	.20		.15	.20						.27			.33	.03	.20	.85	.40		.70			3.48
Wall Rock Mountain	Missouri	.06								.05	.18	.14		.03							.35	.08	.09	.63	.06	.38	.05				T.		2.10
Warm Springs Creek	Madison	.02					.04			.22		.07	.02								.04			.20		.40	.27	.20			.09		1.57
W. Rosebud Creek	Yellowstone													T.							.03			.05			.02				.05		0.15
Willow Creek	....do																																
Wolf Creek	Missouri										.11		T.	.11	.25	.25		T.					.02			.19							0.93
Wolf Point	....do																																
Woodville	Jefferson	.21								.04	.16	.02		.06							.26			.67	.02	.16	.18						1.78
North Dakota.																																	
Aplin	Knife					.01								.10	.02								.05										0.18
Beach	Little Missouri										.04	.03		.20									T.										0.27
Berlin	James																																
Berthold Agency	Missouri			.10							T.	T.	*	.17		T.					T.		.02			T.							0.29
Bismarck	....do				T.						T.		.08	.12		.04	.01			T.	T.	.01	.09					.06					0.41
Broncho	Knife										T.	T.	.10	.20	.05	T.							T.										0.35
Buford	Missouri										T.	.20	T.	T.				T.	T.		T.	T.	T.		T.	T.	T.				T.		0.20
Coal Harbor	....do													.10																			0.10
Dickinson	Heart													.21	.04	T.	.02						.02	T.		T.							0.29
Edgely	James													*	.34			T.					T.										0.34
Ellendale	....do													.02	.15	T.	.02							T.				T.			T.		0.19
Epping	Missouri																																
Fullerton	James													.21	.70						T.		T.	T.		T.		.09			T.		1.00
Haley	Grand										.01		T.	*	.37	T.	T.					*	.03	T.									0.41
Hettinger	Cannon Ball												.20	.20	.15																		0.55
Howard	Missouri													*	.50						.05			.05									0.60
Jamestown	James																																
Kulm	....do										T.	T.	T.	T.	T.	T.	T.				T.	T.	T.										T.
Lamoine	Missouri																																
Lamoure	James										T.	T.	T.	.10	T.						T.			.10									0.20
Manfred	....do										.04	*		.03	T.	T.						T.		.06		.05		.01					0.19
Marmarth	Little Missouri				T.	T.					T.	T.	T.	T.	.30				T.		T.		T.	T.		T.		.10					0.40
Marstonmoor	James																																
Medina	....do										T.	T.	T.	*	1.04								T.	T.									1.04
Medora	Little Missouri											T.	T.		T.						T.			T.				.30			T.		0.30
Melville	James										.02		.10	.21	.09	.06						.15	.07								T.		0.70
Mott	Cannon Ball														.35									T.				T.					0.35
Napoleon	Missouri																																

TABLE 2.—*Daily precipitation for November, 1909. District No. 6*—Continued.

Stations	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
North Dakota—Cont'd.																																	
New England	Cannon Ball										T.		.05	.30	.40	.10						.05										0.90
New Salem	Heart										T.		.10	.20							T.		.12									0.42
Orange	Cannon Ball												.10	.50																		0.60
Palermo	Missouri												T.							.10												0.10
Steele	do													T.	T.						T.	T.	T.	T.			.15					0.15
Swartwood	Grand		T.								.06		.20	.14	.04	.02					T.	.02	.03			T.	T.					0.51
Washburn	Missouri												.05	.06									T.									0.11
Williston	do										T.	T.	.08	.06		T.				.01	.04	.01		T.		T.		T.				0.20
Wishek	do													T.	.15								.05									0.20
South Dakota.																																
Aberdeen‖	James													T.	.80	.20	.10					T.	T.	T.					.08		T.	1.18
Academy	Missouri												T.	.65	.10	.38	.11					.10	.28									1.62
Alexandria	James													1.07	*	.50					T.	.35										1.92
Andover	do														.20	.20	.05				.05	.40						.10				1.00
Ardmore‖	Cheyenne												.20	.20	.10						.40	.40	.05							.40		1.75
Armour	Missouri																															
Ashcroft	Little Missouri										.01		.02	.04	.17	T.					.09	.02	T.			T.	T.	.30				0.65
Belle Fourche	Cheyenne																															
Bowdle	Missouri													*	*	*	.60							.05								0.65
Brookings	Big Sioux												.05	.20		.40					T.	.30	.10									1.05
Burke	Missouri											T.	T.	T.	1.49	T.	.49						.36					T.		T.	.05	2.39
Canton	Big Sioux												.12	.20	.10							.58						.50				1.50
Cascade Springs	Cheyenne													T.	.58	T.	.10	T.			.02		.01			.01				.01		0.73
Castlewood	Big Sioux									T.		T.	.10	.38	.51	.63	.40					.04	.65					.02		T.	.04	2.81
Centerville	Missouri	.04													.73						.48	•										1.21
Chamberlain	do													.50	.40	10.	.10				.10		T.	.05								1.25
Clark	James																															
Clear Lake	Big Sioux																															
Clifton	Missouri											T.	.11	.12	.04	.02	.01				.04	.03	.03			T.		.01				0.41
Cottonwood	do										T.	.20	.25	.05							T.								T.		T.	0.50
Daviston	do										T.			T.							.50	T.					.30					0.80
Deadwood	Cheyenne													.20	.10	.10	.20				T.				T.			T.				0.60
De Smet	James												.05	.60	.60	.28					.10	.05	.20			T.		.05				1.93
Dowling	Cheyenne												.25	.09							.23	.13						.12				0.82
Dumont	do									T.		.30	T.	.50		T.	.50						.80					T.		T.	T.	3.20
Elk Point	Missouri																															
Ellingson	do										T.	T.	.05	.03	.02						.09	.02			T.			.13				0.34
Englewood	Cheyenne														.20		.10						.10	.05								0.45
Eureka	Missouri																															
Fairfax	do																															
Farmingdale	Cheyenne													*	.85	.10					.29		.05	T.	.04			T.				1.33
Faulkton	James									T.				.15	1.30	T.	.50				T.		.05					T.			T.	2.00
Flandreau	Big Sioux													.40	.10	.40	.35				T.	T.	.15									1.40
Forestburg	James												T.	.80							.20	.50						.20				1.70
Fort Meade	Cheyenne													.30		.19					T.				T.			.20			.20	0.89
Frederick	James												.20	.40		.30						.60	.20									1.70
Gannvalley	Missouri										.09				.22						.14	.09						.14				0.68
Greenmont	Cheyenne											T.		.40		.60						.60										1.60
Greenwood	Missouri											T.	.25	.08	T.						.28	.12					.24					0.97
Hardy Ranger Station	Cheyenne													.50	.05						.04	.40						.02				1.01
Hermosa	do													.15	.32	.06	.10				T.	T.	.08									0.71
Highmore	Missouri						T.																									0.94
Hill City	Cheyenne											.07	.07	.26	.03	.12						.22	.05					.12				
Howard	Big Sioux													.20	.15	.10					.01		.06	.05				.01		T.		0.58
Howell	James										T.		.02	.60	.29	.23	.13				.01		.02	.04	..	T.	T.			T.		1.34
Huron	do													.30	.20	.05	T.							.07		T.	T.					0.62
Ipswich	do												.06	.24	.08	.03					.03	.12										0.56
Kadoka	White													.40	.20	.20					.10	.20	.20									1.30
Kennebec	Missouri												T.	.10	.87	T.	T.				T.							.13		T.		1.10
Kidder	James													.20	.15	.20	.28					.02	.20									1.05
Kimball	Missouri													.52	.15	.10	.30				.10			.08		T.				T.		1.25
La Delle	James										.03	.01	.01	.04							.23	.07						.41				0.80
Lead	Cheyenne										T.	T.	.23	.27	.10	.10																0.70
Lemmon	Missouri																															
Leslie	Cheyenne											T.		.32	1.09	.05	.79					T.	.93	.23			.37					3.78
Marion	Missouri													.45	.29	.01					T.		T.				T.	.03		T.		0.78
Mellette	James											T.	T.	.88		.95						.04	.51					.04				2.42
Menno	do													*	.45		*	.47				*	.50	.10								1.52
Mitchell‖	James														.10	.20	.05						.25									0.60
Murdo	White												T.	.10	.26									T.				.05				0.41
Orman	Cheyenne												.20	.30		.20					.20	.20						T.				1.10
Ottumwa	Missouri												.02	.40	.28	.18	.02				.09	.10	.15					T.				1.24
Pierre	do													*	1.03		.50			.15		.31										1.99
Plankinton	James													*	*	.30	.10						.20					.10				0.70
Pollock	Missouri											T.	.16	.25	.05	T.					.11	.25	T.	T.				.11				0.93
Rapid City	Cheyenne													*	*	1.05	T.															1.05
Redfield‖	James												.20	.40	.10	.20	.10					.50	.30			T.	T.	.05				1.85
Rosebud	White													T.	.70	T.	.10	T.								T.	T.	T.				0.80
Roslyn	Big Sioux																															
Running Water	Missouri										.06		.04	.06	.04						.33				.04			.28				0.85
Savoy	Cheyenne													.02	.90	.24						.12										1.28
Selby	Missouri											T.	T.	1.50	.10		.20				.20	.30	.10						T.	T.		2.40
Sioux Falls	Big Sioux										T.			.20						.25								.12				0.57
Spearfish	Cheyenne										T.			.30	.05	.15	.15				T.	.05	.20			T.	T.			T.		0.90
Stephan	Missouri												.15	.35	.10	.05					.02	.30		T.	.02	T.	T.	.05				1.04
Tama	Cheyenne	T.											.05	.10	.06						.05	.08			.01			.08				0.43
Vale	do																															
Van Metre	Missouri										.15			.55	.12	.20	1.70					T.	1.09	.10			T.			T.		4.53
Vermilion	do	.62									.15			.30							.15	T.					.30					0.90
Water's Ranch	Cheyenne													T.	.80	T.	.30	T.			T.		T.						*	.04		1.14
Watertown	Big Sioux													.12	.51	.56	.30									T.				T.		1.49
Wentworth	do													.20		.15					.03	.50	.15			T.			T.	T.		1.03
Wessington Springs	James													*	*	3.20							.54									3.74
White Lake	do											.01	.26	.46	.27	.42	.27				.05	.58	.12	.05	.01			T.				2.50
Yankton	Missouri																															
Minnesota.																																
Pipestone	Big Sioux									T.				.10	.10	.10	.20				.05	.10							T.	T.		0.65
Colorado.																			.20												.28	0.48
Akron	Republican									.13		*	.48		*	.35							.20						*	.42		1.58
Alma	South Platte												.60		T.	.20						T.					T.		.05	.10		0.95
Arriba	Republican												.11	.02		.47							T.				.05	T.	.57	.27		1.49
Auldhurst	South Platte																															
Barker	do											.06	.10		.05	.18					.21	.11							.08	.15		0.94
Boreas	do																															

TABLE 2.—*Daily precipitation for November, 1909. District No. 6*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado—Cont'd.																																	
Boulder	South Platte												.45	.10	.24													.08	.25	.40	.04		1.56
Burlington	Republican												.08	.40		.08						T.						T.	.10	.50		1.16
Cassells	South Platte											.50			.05	T.						T.						.04	.08	.40	.06		1.13
Castle Rock	do												.20																.40				0.60
Cheesman	do												.27	T.	T.	.46						T.						.32	.15	.43	.04		1.67
Cheyenne Wells	Smoky Hill												.35			.21	.21														.66		1.43
Como	South Platte										T.		.80	T.	.40							.33						.20		.20			1.93
Cope	Republican												.36				.40											T.	.46	.20	.26		1.68
Corona	South Platte										.06	.12	.20	.46	.12		.08					.04	.60						.06	.14	.08		1.96
Denver	do												.47	T.	.05	.06												.26	.15	.09	.02		1.10
Edgewater	do												.22	.03	.06													.34		.30			0.95
Estes P'k Fish H'y	do										T.	T.	.38	.04	.04	T.					.03	.05	T.	T.				.15	.15	.25			1.09
Fort Collins	do										T.	*	.50	.03	.08	.01						T.						T.	.11	.06			0.79
Fort Morgan	do												.71	T.	T.	T.															.10		0.81
Frances	do										.04	.02	.42	.08	.03	.03					.12	.19						.11	.12	.34	T.		1.50
Fry's Ranch	do										T.		.81	T.	.22	T.						.03			T.			.12	.05	.19			1.42
Georgetown	do							T.	T.	.18	.10	T.	.04								T.	.32	T.					.07	.39	.10	T.		1.20
Greeley	do								.03	*	.43	.03	.02	.01														.12	*	.10			0.74
Hartzel	do										.45		.02										.03					.30		.04	T.		0.84
Hawthorne	do										.34	.46	.11	.03								T.							.28	.44			1.66
Holyoke (near)	do																																
Idaho Springs	do												.35									*	.25					.10	*	.50	.10		1.30
Keota	do																																
Kossler	do																																
La Porte	do												.57	.10	.13	.05												.12	.04				1.01
Le Roy (near)	do												*	.63		.12						T.								.14	.02		0.91
Longmont	do											T.	.37	.05														T.	.17	.19	T.		0.78
Long's Peak (near)	do										.10	T.	.90	.10	.10	T.					T.	.10						.25	.21				1.76
Moraine	do										T.		.33	.10	.05						T.	T.	T.					.20		.40			1.08
Platte Canon	do																																
St. Cloud	do												.27	T.	.06							.11						.10	.10				0.64
Sedgwick	do							.04	T.			T.	.35	.10	T.						*	.30	T.							T.			0.79
Sill Mine	do										T.	.10	.82	T.	T.	.12					T.	.40	.27	.13				T.	.10	.32	.15		2.41
Spicer (near)	North Platte								.60	T.			.20	T.	.27	.10					T.	.02	T.					.05					1.24
Waterdale	South Platte												.66		.14							.06						*	.13	.14			1.13
Westlake	do																																
Wray	Republican											*	1.00		*	.20						.02						.01	*	.33	.36		1.92
Yuma	do												.50			T.														.20	.22		0.92
Nebraska.																																	
Ainsworth	Niobrara											T.	*	*	2.03	.16					.51							T.		T.	.16		2.86
Alliance	North Platte												.20	.30	.10	.10						.60						.10					1.40
Alma	Republican	.70											.80	.09		*	.55						T.							.04	.20	.19		2.57
Anoka	Niobrara													.23	.18	.07	.32						.50											1.30
Ashland	Platte	.76						T.			.11	1.00	2.36	1.00	.34	.17							.48	.03			T.	T.	1.38	.03			7.66
Atkinson	Elkhorn										.08			.04					1.00				.01					T.			.08		1.21
Auburn	Little Nemaha							.30					.80	3.64	2.55	.55	.22						.20	.02					.77		.02		9.07
Beatrice	Blue	1.07						.15				.16	.95	2.32	.90	.15	.15					.10					.03	T.	.82	T.	T.		6.80
Beaver City	Republican												1.07			.45													.31		.57		2.40
Bellevue	Missouri	1.62						.02				.13	.70	3.05	1.81	.12	.20					.60	.05					.10	1.55				9.95
Blair	do	1.75								T.		.43	.20	1.98	1.12		.55					.54	.10					.01	.70				7.38
Bloomfield	do												.05	.20	.35	.40						.40						T.		T.	T.		1.40
Blue Hill	Republican																																
Bridgeport	North Platte												.50	.20	T.	.20						.40						T.			T.		1.30
Brokenbow	Loup												*	.40			.67																1.07
Burge	Niobrara												*	*	*	*	.80				*	*	1.35	T.									2.15
Burwell	Loup																																
Callaway	do												.98			1.00														.30		2.28
Cambridge	Republican	T.										T.	1.20	T.		.30									T.		T.	T.	T.	.27	.42		2.19
Canton (near)	North Platte												.06		.59							.26				T.		T.					0.91
Columbus	Loup	.10										.16		.65	.88		.55						.25	T.					.11		.03		2.73
Creighton	Missouri												.05	.10	.10	1.44							.25	.12			T.				T.		2.06
Crete	Blue										.05		3.00	1.10		.35						.27						1.75					6.52
Culbertson	Republican													.80		.55														.25	.57		2.17
Curtis	do																																
David City	Blue	1.21						T.		T.		.10	.37	.77	1.02	.12	.39						.35	.07			T.	.06	.30	.04	.01		4.81
Dawson	Great Nemaha	.19						.79		T.		.01	1.07	3.33	2.45	.63	.27						.08	T.					.66	.01	T.		9.49
Duff	Loup																																
Elsie	Republican													.16		.30						.01									.40		0.87
Enderslake	Loup												.10	.05		.15																	0.30
Ewing	Elkhorn												.25	.30	.15	.40						.10	.05										1.25
Fairbury	Blue							T.			.44		3.25	1.50		.33						.11				T.	T.	.67	.07	.08	.58		6.73
Fairmont	do	1.56										.03		1.09	.89		.17					.02					T.		.60		T.		4.36
Fort Robinson	Niobrara	T.											T.	.55	.13	.03	T.					T.	.23					T.	.08				1.02
Franklin	Republican	1.75											.85	.55		.60							T.					T.	T.	.15	T.		3.90
Fremont	Platte	2.00										.48	.54	2.10	.56	.10	.10						.40	.10			T.	T.	.63		T.		7.01
Fullerton	Loup										.40	.22	.69	.41	.31	.80	.19											.23		.10	.68		4.03
Geneva	Blue	1.69										.06	.76	.84	.55	T.	.20										T.	T.	.28	.25	.02		4.65
Gordon	Niobrara													1.00							.75												1.75
Gosper	Republican	.08											43			.20														.21	.55		1.47
Gothenburg	Platte												.80	T.	T.	.84						T.						T.		.18	.55		2.37
Grand Island	do	.70								T.				.02	T.		.03						T.					.12		.06	.04		0.97
Grant	Republican																																
Greeley	Loup												.34	.42		1.00							.32					.06		.02	.31		2.47
Halsey	do											.03	.21	.03		.49						.36									.07		1.19
Hartington	Missouri	.25								T.		T.	.05	.90	T.	.25	.60			T.	T.	.60	.05					T.					2.70
Harvard	Blue												.78	.57		.32										T.		.15		.08	.26		2.30
Hastings	do	1.22												.50	.10		.50						T.					T.			1.00		3.32
Hayes Center	Republican												1.10			.90															.50	1.00		3.50
Hay Springs	Niobrara												.60	.20	.10	.30				.25	.60							T.			T.		2.05
Hebron	Blue					T.					4.00	1.30	T.	T.					T.		T.							1.86	.62	.38	.31		8.47
Holdrege	Republican	.68												.60		.50	.40												T.	.40			2.58
Hooper	Elkhorn	.95										1.99	.60	.76	1.18	.23	.21							.22	.05			.02	.22	T.	T.		6.43
Imperial	Republican												.92			.67						T.						T.		.31	.56		2.46
Kearney	Platte	.66												*	*	.65						.01						T.		*	.40		1.72
Kimball	South Platte												.40	.05	T.	T.						T.											0.45
Kirkwood	Niobrara												.30	.20		.30							1.10								T.		1.90
Kowanda	North Platte												.20			.05						.04							.11				0.40
Lexington	Platte											T.	.58			.07														.18	.32		1.15
Lincoln	do	.01						T.		T.		.10	2.42	1.98	.08	.25	.04					.11	.21	.01	T.		T.	1.25	.63	T.	.05		7.14
Loup	Loup											T.	.70		.48													T.		T.	.40		1.58
Loyal	Loup											T.	.30	T.		1.20														T.			1.50
Lynch	Niobrara											.03	.30	.20		.80						.70											2.03
McCook	Republican												.57			.56														.30	.59		2.02
Madison	Elkhorn	.25										.60	T.	.60	.10	.10	.90						.25	T.			T.	T.		T.	T.		2.8

TABLE 2.—*Daily precipitation for November, 1909. District No. 6*—Continued.

Stations.	River basins.	Day of month																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Nebraska—Cont'd.																																	
Marquette	Platte	.25										T.	.66	.20	.15	.31	.05						.14					T.	T.	.03	.04		1.83
Mason City	Loup			1.06																	.20									.04		1.30
Minden	Blue												.60	.42		.58						.05	.01					.06	.05	.21	.36		2.34
Nebraska City	Missouri	.50						.32				.15		4.00		.60							.24						.83		.15		6.79
Norfolk	Elkhorn											.23	.47	.62	.50	.30	.42						.18					.02		T.	T.		2.74
North Loup	Loup	T.											*	*	*	1.26												T.		T.	T.		1.26
North Platte	Platte											.02	.66		1.18							.01						T.		.02	.35		2.24
Oakdale	Elkhorn										T.	.02	.35	.65		.70					T.	.22		.01				.02		T.	.05		2.02
Omaha	Missouri	.53						.02		T.	T.	.15	1.94	1.88	.21	.29	T.					.25	.32	.05		T.	T.	.50	.08	T.	.02		6.24
Ord	Loup													.71				.55					.10										1.36
Pawnee City	Great Nemaha							.30				.13	3.87	2.65		*	.80												.50	.05	.05		8.35
Plymouh	Blue								.10			.60	2.70	1.52		.27						.16							.66		.12		6.13
Purdum	Loup											.04	.40	.10		1.00	.20					.20						T.		.01	.04		1.99
Ravenna	...do												.60			.70						.05						T.			.42		1.77
Redcloud	Republican	.81						T.		T.			.95	.21	.20	.25	.05						.02					.01	.50	.17	.11		3.28
St. Libory	Loup												1.00	.20	.10	.40							.10							.19	T.		1.99
St. Paul	...do	1.14									.10		.60	.40		.73							.21								.02		3.20
Santee	Missouri											.01	T.	.30	.30	.25	.30					.01	.80										1.97
Sargent	Loup											T.	.40			.20							.20										0.80
Schuyler	Platte	.53													.30	.75		.40					.20	.05					.35				2.58
Scottsbluff	North Platte												.16	.17	T.	.07						.32	T.				T.						0.72
Seward	Blue										T.	1.75	1.75		.18							.18				T.	T.	.55	T.	.10	.10		4.61
Sheridan	Loup													T.	.40	.30																	0.70
Sidney	North Platte																																
Springview	Noibrara												.10	.30	.20	.60						.20	.60					T.		T.			2.00
Stanton	Elkhorn											.70	.30	.20		.80							.30	T.				.25			.30		2.85
Stratton	Republican												.75			1.00														.25	.50		2.50
Superior	...do													1.00	1.30		.90												.60		.30		4.10
Tecumseh	Great Nemaha							.35						2.40	3.00		.88											1.20					7.83
Tekamah	Missouri	1.00								T.		.65	*	1.08	1.05	*	.30							.20				.05	.15	T.	.02		4.50
Turlington	Little Nemaha	.16						.11		T.	T.	.14	.94	.54		.15	.37						.28	.15			T.	.10	.14	T.	T.		7.38
Valentine	Niobrara											T.	.18	.14		.73	.06				T.	.49	.01				T.			.02		1.63
Wahoo	Platte										.24		1.65	1.93			.30					.40		.10				1.03					5.65
Wakefield	Elkhorn											.53		.44	1.00		.60						.30	.10				.08					3.05
Walthill	Missouri									T.	.45	.40	1.00						.60			.30	.10										2.85
Watertown	Platte	.16											.40			.11						T.								.44		1.11
Wauneta	Republican												.80	1.00															30	.55	.80		3.45
Weepingwater	Missouri	.78						T.				.42	1.56	2.84	1.43	.24	.17						.48	.16			T.	T.	1.10	T.	.62		9.20
Westpoint	Elkhorn											.52	.39	.81	.20	.50							.30					.20	T.				2.83
Wisner	Elkhorn	.21									12	1.02				.10	.23							.33				T.					2.01
York	Blue	1.04											.80	.57	.48	.35	.05						.14				T.	T.	.18	.10	.13		3.84
Iowa.																																	
Afton	Missouri	.50					1.55					.10		1.83	.67	.10							.30	.05				.59		.02		5.20
Allerton	Chariton																																
Alta	Little Sioux	1.50	.15									1.10	T.	.88	1.40		.40					.03	.45	.06	.13		.01		.07		.03		6.13
Alta (near)	...do																																
Alton	Floyd	.68								T.		.18		.30	1.18	T.	.80					.05	.60	.15						T.		3.94
Atlantic	Nishnabotna	1.14						.53		T.	T.	.66	.80	3.44	.35	.24	.29						.39	.15	.02		T.	T.	.65	T.			8.66
Audubon	...do	1.40						.06				.27	.10	3.77	.55	.25	.39						.45	.25	.10				.98				8.58
Bedford	Missouri	.17						.69	.06	T.	T.		.72	.86	.20	.28	.42						24	.11					.46	T.	T.		4.21
Chariton	Chariton	.42						1.30		T.		.22	T.	.70	.15	T.	.95						.80	T.					.20				4.74
Clarinda	Nodaway		.02					.24	.74			.08	T.	1.95	.80		.84						.30	.10					.66		.01		5.74
Corning	...do	.18						.71			T.	.25		2.24	.17	T.	.67						.20	.20				1.00	T.				5.62
Corydon	Chariton	.16						.50	.16	T.		T.	.08	.52	.10	T.	1.01						.57	T.			T.		.27		T.		3.46
Creston	Missouri	1.09	T.					.43	.35			.15	T.	1.70	.21		.34						.02	.10	T.		T.		.53	T.	T.		4.92
Cumberland	Nodaway	.08											.21	1.90		.03	.06						.01							1.07			3.36
Denison	Missouri	1.24									.10	1.17	T.	2.74	1.58	.03	.42						.15	.07			T.	.03	.60				8.13
Elliott	Nishnabotna				.29			.06			T.	.36	.70	3.30	.61	.68	.10						.40	.35				.93	T.				7.78
Greenfield	Nodaway																																
Hancock	Nishnabotna	.50										.50		3.00	2.30		.58						.30	.20				T.	1.00	T.	T.		8.38
Harlan	...do	1.98						.04			T.	.27	T.	4.08	1.67	T.	.57						.37	.20	T.		T.	.03	.63	T.	.01		9.85
Hopeville	Missouri	.11						1.39			T.	.20	.54	.80		.26	.47					.41	T.	T.				.40		.02		4.60
Inwood	Big Sioux	.34								.01	T.	T.	.09	.29	1.38	.10	.35					.03	.45				.01	.02		.01		3.08
Lamoni	Missouri	.18						.72				.01	.44	.57	.06	.45	.51					.01	.46	.04					.20		.01		3.66
Larrabee	Little Sioux	1.03									.38	.29	.60	1.40		.40	.77				.17	.30	.47	.08				.02			.01		5.92
Le Mars	Floyd	.85										.39	T.	.47	1.12		.47				T.	.14	.77				.05	T.	.09		T.		4.35
Lenox	Missouri	.12						1.40				.05	.80	.90	.10	.15	.15						.15	.10					.50				4.42
Leon	...do	.20						.60	T.	T.	T.	T.	.15	.65	T.	.10	.95						.65		T.		T.	T.	.15	T.	.05		3.50
Little Sioux	Little Sioux	1.18										.60		1.70	1.25		.50						.25	.10				.05	.30				5.93
Logan	Missouri	1.10						T.				.73	.78	2.34	1.52	.05	.48						.25	.10			T.	T.	.94		T.		8.29
Mt. Ayr	...do	.20						.65	.15		.03	.22	.55	.71	.12	.12	.65						.35	.08					.35	.03	.08		4.29
Odebolt	...do	2.00										1.33		.65	1.50	.50	.63						.30	.12				.15					7.18
Onawa	...do	.62										.95	.10	1.10	1.25	.05	.65						.30	.15	.04			.03	.10				5.34
Pacific Junction	...do	1.05						.03				.28	1.32	3.04	1.82	.28	.28						.78	.06			T.		.80	T.	T.		9.74
Rock Rapids	Big Sioux												.60			1.30							.60	.10				T.	T.	T.	T.		2.60
Sheldon	Floyd	.50								T.	.25	T.		.65	1.30	T.	1.20	T.			T.	T.	.65	.25			T.	.15		T.	.10		5.05
Sibley	Big Sioux	.90									.18			.28	1.62		.50						.02	.20	.10			.18	.04		T.		4.02
Sioux Center	Floyd	.22								T.	*	.24		.34	1.00	.30						.05	.30					.02				2.47
Sioux City	Missouri	.11								T.	.25	.04	.25	1.13	.20	.35	.12				T.	.35		.10	.04	T.	T.	.02	.01	.01	.04		3.02
Thurman	...do	1.05						.28		T.	T.	.12	.84	3.96	1.99	.21	.61						.24	.12	T.		T.	.05	.86	T.	T.		10.33
Washta	Little Sioux	.52									.63		.65	2.18		.30	.30					.30		.05	.15			.10					5.18
Woodburn	Chariton	.50					1.30	.06	T.	T.	.05	.30	.50		.13	.80							.75		T.				.26		.01		4.66
Kansas.																																	
Abilene	Smoky Hill													2.88	1.06		.56					T.						.76	.12	.06		5.44
Agricultural College	Kansas	.06								.02		1.20	3.10	1.16	.63				.03				T.					1.38	.10	.30		7.98
Alton	Solomon	.32										.50	.32	.07	.22	T.						T.	T.					.21	.20	.22	.30		2.36
Atchison	Missouri	.10						.20			T.	.30	1.50	.40	1.20	.50							T.						.20	T.	T.		4.40
Baker	...do	T.						.25		T.		1.25	1.00	.65	.35	1.90						T.	T.	T.				.35	1.00	1.00		7.75
Beloit	Solomon																																
Blakeman	Republican												.89	.03		.57	.02													.38	.58		2.47
Blue Rapids	Blue																																
Centralia	...do							.01					.70	2.90	2.83	*	.88											1.15	.02	.02		8.51
Chapman	Smoky Hill												.88	2.60	1.25	.50	.54					T.	T.					1.10	.05	.10		7.02
Clay Center	Republican											1.26	2.60	.50	1.75												T.	.30	.15	T.		6.56
Colby	...do												.76			.36	.12												.40	.62		2.26
Concordia	...do																.30					T.	T.			T.		.20	.14	.50	.29		4.35
Densmore	Solomon											1.00			*		.40					T.						.39	.31	.55	.05		2.70
Dresden	Republican	.01											.85	T.		.11	.12						T.						T.	.35	1.12		2.56
Ellsworth	Smoky Hill											2.00	1.34	.22	.29	.10										T.			.60	.45	.30		5.30
Enterprise	...do											1.09	2.81	1.14	.46	.05													1.10	.07			6.72
Eskridge	Kansas	.08											.20	3.05	1.02	1.40	.20						.06				T.		.38		T.	T.		6.39
Farnsworth	Smoky Hill	.02											.75	.08		.09	.05													.64	.91	.71		3.25
Ft. Scott	Marmaton					.08		T.	1.01	.05	T.	1.60	.55		.62	.20	.75						.10							T.				4.96
Frankfort	Blue							.10		T.			1.50	4.83	.85	.10	.60					T.		T.	T.		T.		1.50		.10		9.58

TABLE 2.—*Daily precipitation for November, 1909. District No. 6*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Kansas—Cont'd.																																	
Garnett	Marais des Cygnes								.33			.08	.09		.93	.22	.33															1.98
Gove	Smoky Hill	.13											.70			.20												.09	*	.87	1.00	2.97
Hanover	Blue	.11						T.				4.10			.72	.28	.06						.08		T.		T.		.77	.07	T.	6.19
Harrison	Republican	.40										1.55	.62	.28	.20	.06							.08				T.	.50	.13	.42	.22	4.46
Hays	Smoky Hill	.44											.90	.65		.14						T.							.55	.58	.29	3.55
Hill City	Solomon																															
Horton	Kansas							.15					.50	1.82	1.53	.50	.18					T.	.05						.78	T.	T.	5.51
Hoxie	Solomon	.03											.90			.10	.10										T.		.10	.50	.86	2.59
Jewell	Republican											1.80	1.73			.16					.05								.59	.70	.09	5.12
Lawrence	Kansas	.06						T.	T.	.01			.03	2.31	.69	.28	1.13						.05						.13		.10	4.79
Lebanon	Solomon	1.73										1.12	.48	.60	.02	.30							.06			T.		.24	T.	.18	.26	4.99
Lindsborg	Smoky Hill																															
Manhattan	Kansas	.15								T.		T.		2.98	2.63	T.	.93						.03		.03				1.01	.11	.10	7.97
Mankato	Republican												1.08	.85	.40	.20	.10						.05		.03			.35	.27	.60	.10	4.03
Minneapolis	Solomon							T.				1.31	2.03	.40	.45	.10					.10							.74	.51	.25	.48	6.37
Moran	Marmaton	.02				.28		.58	.75	T.	T.	.35	.46	.01	.79	.28	.75						.11						T.	T.	T.	4.38
Norton	Republican	.19						T.					.60	T.	T.	.10	1.50												.15	.40	.60	3.54
Oberlin	...do												1.12	.08		.27	.24										T.			.41	.61	2.73
Oketo	Blue							.01					1.04	3.00	1.55	*	.76					.04			T.		.02		.90	.13	T.	7.45
Olathe	Kansas	.03						1.80					.10		.46	.24	.11				.07		.07		.02				.02	.01	.01	2.94
Osage City	Marais des Cygnes	T.						.39		T.			.04	3.96	1.04	1.61	.64				T.								T.	T.	T.	7.68
Ottawa	...do							T.		T.			.12	.12	.77	.31	.42						.08		T.				.02			1.84
Paola	...do																															
Phillipsburg	Solomon	.79											.60	.07	.04	.05	.26						T.				T.	.17	.27	.19	.23	2.67
Pleasanton	Marais des Cygnes								1.30		.04	.20	.43		.60	.22	.05						.06									2.90
Republic	Republican																															
Russell	Smoky Hill	.33										.07	2.15	.35	.20	T.	*	.34										T.	1.34	.14	.36	5.78
St. Francis	Republican												.54			.33						T.						T.	T.	.30	.83	2.00
Salina	Smoky Hill												.65	2.60		.90	.55										T.		.75	.36	.05	5.86
Scott	...do												.81	.26			.59												.41	.81	.79	3.67
Topeka	Kansas							.13					.69	3.48	T.	1.22	.02					T.	.04		.01				.25		.14	5.98
Valley Falls	...do	.27						.15					.25	2.20	.92	.50	.79					T.	.03	T.					.25		T.	5.36
Vinland	...do							.03					.12	.56	.63	1.05							.08		.04				.08	.02		2.61
Wakeeney	Smoky Hill	.35											.83	.11		.20	.06											.38	.66	.50	.65	3.74
Wallace	...do											1.01	.16	T.								T.							T.	.38	1.00	2.55
Wamego	Kansas							T.		T.	T.		.45	6.10	.40	.90						T.	.12		.05				.96	T.	.10	9.08
Missouri.																																
Albany	Grand		.50						.35					.95										.20	.10				.15			2.25
Amoret	Osage								.06	.02		.10	.02	1.00		.23	.87					.17			T.							2.47
Appleton City	...do							.40				2.15		.40	.85	.40	.95																5.15
Arlington	Gasconade																															
Arthur	Osage					T.		T.	.50			1.30	.65		.55	.26																	3.26
Avalon	Grand							1.75	.73				T.	.20	.25		1.10						.23						.08				4.34
Bagnell	Osage																															
Bethany	Grand																															
Bolivar	Osage	.27							1.89	.01			3.44		.06	.35	.76	.02							.02							6.82
Boonville	Missouri	.98							.80	.04			.16	T.	.04		1.30						.16	.08			T.	T.	T.			3.56
Brunswick	Grand	.45	T.						1.60				.35	.22			.90						.22		.04				.05			3.83
Clinton	Osage	.02						.03	.45	.04		1.13	.48		.28	.54	.80						.14		.03						.01	3.95
Columbia	Missouri	.10						1.76	.54			1.26	.03	.06	.05	.96	.41				.10	.08			.01			T.	T.	T.		5.36
Conception	...do							.74		T.			.42	.98		.58	.53				.14	T.						.24	T.			3.63
Darksville	Chariton	.20						.40	.55			T.	T.		.25		.85						.35									2.60
El Dorado Springs	Osage					T.		T.	.40	T.		.60	1.21		.51	.65	1.33															4.70
Fairport	Grand	.43						1.62		T.	T.		.20	.65	.12	.50	.60						.04						.15	.26	.02	4.59
Fayette	Missouri	.15						1.06				.02					.87				.25								.01			2.36
Fulton	...do	.53						.33	1.69			1.15	.58		.05	.03	1.59					T.	.12							T.	T.	6.07
Gallatin	Grand	T.						1.10					.25	.25	.30	1.50						.15		.05					.15	.05	.05	3.85
Glasgow	Missouri	.72							.97				.08	.34			.98						.42									3.51
Grant City	...do	.40						.60	T.	T.	T.	T.	.36	1.14	T.	.30	.53						.30	.11			T.		.24	.02	T.	4.00
Harrisonville	Osage	.50	.01					*	.22	T.	.01		.03	.15	.34		1.08						.10	T.	.03	T.			T.	T.	.02	2.49
Hazelhurst	Grand	.44						.50		.02		.24	.16	.07	.20	.24	.60					.25	.05	T.					.09	T.	T.	2.86
Hermann	Missouri	.34	.01						2.00	.76			1.90	.12	.14		1.26	.04				T.	.46	.01						T.	.01	7.05
Houston	Gasconade	.36							1.40				.65		.30		.90						.10									3.71
Huntsville	Chariton							.70							.10	.70						.65										2.15
Jefferson City	Missouri	.51				T.			1.73	.25			2.90	.03	.22		1.13						.20	.09						T.	T.	7.06
Kansas City	...do	.01						1.30		.03	T.	.03	.07	.35	.01	.63	.01					.01	.08		.01			T.	.02	.01	.29	2.86
Kiddder	Grand	.28	.06						1.00	.02				.73	.20		1.20						.10	.05					.04	.01		3.69
Lamonte	Missouri	.14						.70	.25	T.		.07	.30		.04	.14	.92						.38	.02			T.		T.	T.	T.	2.96
Lebanon	Osage	.23							.76				2.71				1.16															4.86
Lexington	Missouri	.18							.40				.39	.17	.30		1.05						.20		T.						.03	2.72
Liberty	...do	.24						1.30	T.			.15	.15			.65							T.				T.	T.	T.		.70	3.19
Lockwood	Osage								.86			1.03	3.17		.15	1.13	1.19															7.53
Marshall	Missouri	.16						1.06	.80	.07		.43		.24		.10	1.10						.27							T.	.04	4.27
Marshfield	Osage																															
Maryville	Missouri	.10							.56	T.		T.		1.48	.35	.54	.73						.24	.05	.04			.54	T.			4.63
Mt. Vernon	Osage						.08	.10	1.75	.04			5.50		.15	.45	.40						.02									8.49
Nevada	...do					T.		T.	.67	.02		.40	1.16	T.	.55	.70					T.	.10								T.	3.60
New Palestine	Missouri								1.05			.73	T.		1.24						.17	T.										3.19
Oregon	...do	T.						.96						2.00		.77							.14	T.				.54	T.	T.		4.41
Osceola	Osage	.80							.97				1.76	.46	.05		1.35															5.39
Parkville	Missouri																															
Rolla	Gasconade	.46					T.		1.05	.04			2.93		.16	.11	.49					T.	.04							T.	T.	5.28
St. Charles	Missouri	T.							1.59			T.	2.73		.23		.66					T.	T.							T.		5.21
St. Joseph	...do	.84							.68					1.42	.26		1.54						.12	.06					.08	.04		5.04
St. Louis	Mississippi	.01						.64	.49			.78	1.22		.41	.25	.26					T.	.30							T.		4.36
Sublett	Chariton																															
Trenton	Grand	.37						.10	.26			.33		.25	.25	.14	.60						.15	T.	T.				.10				2.55
Unionville	Chariton	.35						T.	.30				.10	.50	.60		1.05						.72	T.					.26		.12	4.00
Versailles	Osage																															
Warrensburg	Missouri	.08						.12	.21			.05	.11		.21	.14	.59						.12	T.			T.		T.	T.	T.	1.63
Warrenton	...do	.44	.01					T.	2.15	.45			2.08	.12	.13		1.32						.55	.03					T.	T.		7.28
Warsaw	Osage	.60				T.		.14	1.14			.46	1.06		.06	.62	1.02					T.	.12		.07							5.29
Wheatland	...do							.10	1.25			1.00	1.20			1.00	1.00															5.57

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 6, Missouri Valley.*

Date	Wyoming.																Montana.											
	Basin.		Cheyenne.		Fort Laramie. ‡‡		Lander.		Newcastle.		Pathfinder.		Sheridan.		Yellowstone Park.		Billings. ‡‡		Dillon.		Havre.		Helena.		Lewiston.		Malta.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	56	26	55	38	65	19	60	25	68	36	.....	.....	51	24	40	31	55	30	64	27	52	31	49	37	64	35	53	28
2...	63	28	63	43	75	25	67	28	70	34	.....	.....	72	25	51	37	72	26	69	26	64	30	62	38	67	36	67	28
3...	60	28	70	38	79	24	67	30	61	32	.....	.....	74	33	56	37	70	34	71	25	66	50	68	46	59	28	70	37
4...	64	30	70	36	76	23	66	27	56	30	.....	.....	68	26	56	29	71	26	67	23	56	40	59	35	68	34	61	42
5...	67	27	67	36	73	21	61	27	63	28	.....	.....	68	24	57	29	66	23	70	29	60	30	65	33	68	34	65	32
6...	65	24	69	33	76	20	60	23	60	26	.....	.....	59	20	42	29	58	23	70	24	42	24	46	31	50	40	51	34
7...	60	22	50	31	56	29	49	26	58	30	.....	.....	54	24	44	27	56	25	66	23	49	15	43	24	57	18	47	14
8...	54	24	48	23	53	25	53	21	56	28	.....	.....	48	23	50	28	40	22	64	26	58	23	60	29	54	27	59	18
9...	50	28	63	35	51	28	60	29	60	32	.....	.....	67	27	48	31	58	25	65	23	49	30	55	39	60	34	52	32
10...	52	22	52	31	57	27	49	33	50	31	.....	.....	54	30	35	24	56	26	62	22	37	28	42	33	47	26	42	32
11...	65	26	46	26	53	23	42	15	51	24	.....	.....	40	23	33	14	60	26	61	19	29	16	38	29	33	24	37	24
12...	46	14	30	22	33	23	37	19	46	24	.....	.....	36	20	32	9	41	17	53	14	17	12	29	19	24	14	26	8
13...	35	10	24	17	28	22	34	15	30	20	.....	.....	25	13	22	4	27	16	41	10	16	11	19	3	20	3	16	3
14...	30	0	18	11	20	15	17	6	20	10	.....	.....	15	10	8	− 1	20	5	36	5	12	−12	14	1	11	− 7	14	− 6
15...	35	10	17	10	22	13	17	− 4	14	8	.....	.....	20	− 2	29	0	12	−10	33	− 8	5	−16	19	− 2	15	−12	14	− 6
16...	42	22	37	17	33	0	27	− 3	30	4	.....	.....	36	4	28	11	22	4	34	10	20	− 9	39	13	35	9	23	−10
17...	46	27	39	20	43	15	31	6	35	8	.....	.....	42	7	34	20	38	12	50	20	15	0	38	25	45	22	20	− 9
18...	47	30	50	35	56	10	51	19	40	15	.....	.....	63	21	42	29	46	19	56	24	56	15	57	29	53	40	51	9
19...	43	31	53	43	61	31	55	35	45	28	.....	.....	64	47	39	32	60	36	57	28	54	12	51	37	50	42	52	26
20...	42	27	58	30	64	41	56	32	50	28	.....	.....	59	23	41	23	59	22	50	26	18	−5	42	30	52	27	29	3
21...	44	26	39	28	36	33	42	25	38	19	.....	.....	31	15	36	22	31	16	52	25	16	− 4	40	24	40	15	18	2
22...	48	24	49	23	54	14	56	22	36	30	.....	.....	52	9	45	29	29	12	46	24	37	−14	53	27	50	21	23	13
23...	40	24	58	45	65	16	59	35	50	22	.....	.....	63	36	45	34	54	16	49	30	55	37	53	41	53	17	47	18
24...	48	27	60	37	66	34	60	32	52	24	.....	.....	60	32	44	37	60	27	50	29	49	11	50	32	56	30	49	17
25...	47	24	56	30	63	33	58	26	45	20	.....	.....	40	28	39	32	62	27	47	31	20	12	38	31	41	22	18	4
26...	47	24	61	36	52	33	58	31	48	18	.....	.....	35	29	34	21	31	25	43	29	28	18	35	28	37	21	24	14
27...	37	23	38	23	35	31	31	5	47	16	.....	.....	33	4	28	9	34	23	40	5	40	15	36	23	40	5	32	4
28...	34	18	31	12	40	12	23	− 4	42	19	.....	.....	41	4	31	11	36	7	39	8	58	33	41	24	59	21	44	16
29...	32	10	35	26	47	15	31	5	48	24	.....	.....	48	20	40	18	43	10	50	24	65	45	56	29	63	36	52	42
30...	37	20	46	27	56	27	31	7	54	18	.....	.....	47	23	38	24	52	30	51	28	66	31	55	30	55	24	50	32
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	47.9	22.5	48.4	28.7	53.0	22.7	46.9	19.8	47.1	22.9	.....	.....	48.8	20.7	38.9	22.7	47.3	20.0	53.5	21.0	40.0	17.9	45.1	27.3	47.5	22.9	40.2	16.5

Date.	Montana.				North Dakota.										South Dakota.											
	Miles City.		Poplar.		Berthold Agency.		Bismarck.		Dickinson.		Jamestown.		Williston.		Aberdeen. ‡‡		Chamberlain.		Huron.		Kadoka.		Lemmon.		Pierre.		Rapid City.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	58	34	55	33	59	32	60	22	58	32	63	18	56	30	65	27	.....	.....	60	29	62	25	59	26	64	28	61	32
2...	75	32	67	30	70	23	65	25	71	28	57	21	68	27	60	30	.....	.....	59	30	71	29	72	34	70	34	73	28
3...	76	48	68	40	66	38	68	40	66	38	65	35	64	43	70	33	.....	.....	72	44	68	28	69	40	74	46	75	42
4...	70	36	62	37	64	34	66	35	65	34	65	34	59	38	73	35	.....	.....	73	36	66	29	67	37	77	41	69	41
5...	60	32	69	32	60	30	65	37	62	32	58	31	66	36	70	33	.....	.....	69	37	64	34	61	32	67	37	65	36
6...	58	30	58	26	57	31	55	35	60	26	67	31	57	34	75	33	.....	.....	76	34	75	39	64	30	81	40	75	37
7...	50	26	48	18	51	26	46	20	44	20	59	25	47	18	55	35	.....	.....	54	25	79	35	54	25	53	31	48	31
8...	58	35	58	15	50	16	47	13	49	19	45	8	51	21	38	15	.....	.....	46	17	60	22	48	23	51	23	55	28
9...	55	29	56	23	56	26	55	33	62	24	52	29	55	14	58	14	.....	.....	57	35	.....	36	60	30	66	42	74	38
10...	48	36	45	30	40	25	54	34	52	31	65	40	36	30	70	38	.....	.....	69	36	.....	38	54	32	63	40	59	34
11...	36	26	36	25	38	28	36	20	34	22	42	27	32	17	41	25	.....	.....	43	25	.....	24	39	26	45	29	43	29
12...	26	20	33	12	30	.....	24	16	.....	14	32	18	17	8	32	18	.....	.....	33	18	30	24	31	19	34	20	32	26
13...	26	12	17	9	16	11	19	13	16	9	22	10	15	8	32	17	.....	.....	28	20	29	18	27	11	28	20	26	13
14...	14	0	17	− 1	17	9	16	4	15	− 1	21	10	14	− 5	22	15	.....	.....	20	7	19	11	13	8	20	14	17	7
15...	22	− 4	23	−11	19	−13	15	− 4	15	−15	16	9	20	−10	15	− 5	.....	.....	20	0	15	10	13	− 1	15	10	14	9
16...	26	− 5	22	− 6	17	1	21	9	16	−10	22	9	22	− 3	23	0	.....	.....	18	9	19	6	18	11	19	8	35	− 2
17...	21	− 1	27	4	22	− 1	22	8	18	− 6	22	6	21	− 2	23	− 3	.....	.....	16	6	22	5	15	1	17	11	28	9
98...	56	14	48	12	48	10	48	10	47	9	36	12	45	14	30	0	.....	.....	33	6	42	8	44	7	38	8	61	23
19...	56	34	43	31	56	27	60	28	55	30	44	14	44	22	44	6	.....	.....	47	19	52	36	36	31	49	25	64	44
20...	42	22	32	5	38	12	32	7	49	14	44	15	22	− 1	30	21	.....	.....	37	19	45	24	43	19	41	22	54	24
21...	35	18	20	10	19	4	20	4	25	10	16	10	21	3	33	− 1	.....	.....	19	1	46	15	20	10	22	7	26	16
22...	38	28	39	10	24	12	18	8	23	7	15	2	27	15	33	3	.....	.....	19	10	31	11	20	12	19	14	28	15
23...	56	32	49	20	49	17	42	16	58	18	37	12	45	21	38	7	.....	.....	38	19	50	19	55	19	47	19	62	24
24...	66	38	50	20	64	15	63	23	62	32	47	15	54	15	30	16	.....	.....	42	27	56	36	53	23	50	34	62	36
25...	40	25	40	22	46	8	27	16	50	12	46	15	18	8	30	15	.....	.....	37	25	41	29	43	16	35	27	49	30
26...	30	28	29	16	21	16	22	17	25	20	21	15	22	16	29	23	.....	.....	39	28	51	26	25	23	30	28	33	27
27...	38	28	30	12	36	17	34	13	36	21	26	13	34	17	29	20	.....	.....	29	23	31	27	32	22	33	26	33	18
28...	50	24	45	5	48	6	38	5	49	12	27	2	45	15	28	0	.....	.....	30	14	41	27	33	13	34	16	43	10
29...	58	31	53	28	64	25	48	24	62	26	34	20	51	30	38	7	.....	.....	36	13	42	28	48	22	45	27	62	24
30...	52	33	48	35	59	26	54	33	58	31	37	27	53	32	40	11	.....	.....	38	34	.....	.....	50	28	52	36	62	36
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	46.5	24.7	42.9	18.1	43.5	17.6[a]	41.3	18.8	44.9[a]	18.0	40.1	17.8	39.3	17.4	41.8	16.3	.....	.....	41.9	21.5	46.4[d]	24.1[a]	42.5	21.0	44.6	25.4	49.6	25.5

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 6*—Continued.

Date.	South Dakota.						Colorado.				Nebraska.																	
	Sioux Falls.		Watertown.		Yankton.		Denver.		Wray.		Alma.		Bridgeport.		Grand Island.‖		Hay Springs.		Hebron.		Lincoln.		North Platte.		Oakdale.		Omaha.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	58	30	60	32	61	37	64	32	69	26	69	55	75	30	62	28	62	18	63	35	64	45	69	27	61	37	61	44
2...	60	40	67	30	62	36	68	40	75	28	68	30	72	29	62	30	70	23	75	37	66	40	73	26	62	29	61	44
3...	75	35	68	32	75	45	75	41	85	35	82	35	76	29	78	40	75	32	80	38	77	46	80	35	74	38	75	46
4...	79	40	73	35	81	38	73	38	76	30	80	34	75	25	76	36	78	26	78	40	80	41	80	31	74	34	76	49
5...	74	42	61	39	71	43	74	38	79	30	78	36	73	22	72	38	77	22	74	45	78	44	76	33	73	34	77	50
6...	68	34	74	39	77	37	75	40	76	35	74	39	70	22	72	48	77	24	57	29	75	52	76	34	73	38	72	54
7...	66	29	61	36	58	30	52	34	59	31	63	42	74	21	56	44	51	32	64	31	58	41	55	25	54	32	60	42
8...	64	22	46	15	48	20	45	26	56	17	55	23	60	20	53	28	52	18	61	45	50	29	54	18	48	16	50	32
9...	55	40	54	31	57	33	68	35	68	31	65	30	62	20	60	41	60	30	72	46	60	43	66	33	57	30	56	44
10...	72	36	69	41	76	44	62	38	68	45	78	50	60	20	66	38	55	32	60	35	71	54	66	40	73	48	69	53
11...	63	30	50	29	53	28	50	27	56	24	62	45	52	19	60	38	48	20	67	33	65	42	57	36	53	34	63	43
12...	47	28	35	18	33	26	40	26	35	32	45	34	40	28	37	30	39	20	40	25	42	32	37	28	34	26	43	33
13...	42	28	30	23	34	31	28	24	32	25	34	30	28	20	38	31	28	16	32	21	38	34	29	21	33	24	41	37
14...	36	18	27	15	31	13	26	16	26	15	31	23	20	12	40	24	16	7	30	11	35	23	23	16	24	12	37	22
15...	18	8	17	0	23	10	18	10	18	13	30	19	17	12	29	22	19	8	29	15	29	19	17	12	22	10	30	20
16...	21	6	21	13	22	10	45	9	37	5	27	11	32	3	25	11	30	− 3	32	16	29	17	30	2	18	10	30	16
17...	20	4	19	4	18	9	38	15	41	5	31	4	32	1	36	9	35	10	45	27	28	16	29	2	19	6	24	14
18...	40	16	30	1	40	9	63	29	48	11	40	1	46	8	34	12	46	8	58	31	44	15	41	4	39	0	44	16
19...	45	30	40	16	49	25	63	40	53	27	50	18	65	27	46	30	57	28	66	29	58	33	45	24	46	24	56	34
20...	40	32	37	21	49	26	71	42	68	32	55	24	68	35	47	34	48	32	50	28	66	34	50	30	48	25	64	32
21...	42	34	23	1	26	17	45	33	51	26	40	26	48	24	28	21	33	22	42	21	34	25	31	20	25	18	32	25
22...	40	6	21	8	25	13	60	29	46	22	39	22	42	12	36	21	33	7	42	25	29	22	36	17	25	16	28	23
23...	38	10	35	18	43	24	70	43	70	28	57	28	60	35	42	26	62	30	48	31	41	26	60	30	40	20	38	24
24...	46	20	41	27	54	31	67	40	74	33	66	33	61	34	59	38	60	32	68	34	65	41	70	36	55	35	56	38
25...	58	30	39	27	49	27	73	34	66	30	63	29	63	27	64	35	56	30	65	35	68	37	65	33	63	31	67	40
16...	44	32	41	30	65	34	68	47	66	32	65	50	60	28	65	56	50	30	69	59	67	57	59	39	65	45	63	55
27...	46	30	38	23	34	25	53	23	59	30	62	32	50	27	43	43	40	25	59	30	66	30	43	28	45	26	62	32
28...	44	18	34	14	34	23	32	14	47	28	37	32	43	18	41	29	42	15	43	31	36	30	41	27	38	25	40	30
29...	40	20	39	17	40	23	37	27	36	29	40	32	45	22	50	31	49	25	44	36	44	34	39	31	40	24	44	34
30...	42	38	40	34	46	38	40	27	41	33	48	38	47	26	51	36	47	29	49	36	48	42	44	37	47	37	48	43
31...																												
Mns	49.8	26.2	43.0	22.3	47.8	26.8	54.8	30.6	56.0	26.3	54.5	30.2	53.9	21.9	50.9	31.6	49.8	21.6	55.4	31.8	53.7	34.8	51.4	25.8	47.6	26.1	52.2	35.6

Date.	Valentine, Nebr.		Iowa.						Kansas.										Missouri.							
			Clarinda.‖		Sibley.‖		Sioux City.		Colby.		Concordia.		Salina.		Topeka.		Wakeeney.		Columbia.		Kansas City.		St. Louis.		Unionville.‖	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	64	24	56	46	58	.....	60	41	71	31	66	44	71	42	68	48	65	38	61	49	63	48	62	54	56	50
2.....	72	25	65	40	58	33	59	38	85	35	71	39	75	34	72	40	76	36	67	43	68	46	68	50	66	44
3.....	76	35	77	37	71	32	72	44	82	41	80	47	78	44	81	51	81	35	74	44	80	55	77	49	75	46
4.....	77	32	78	36	75	35	75	41	80	27	82	43	80	40	82	46	80	40	78	41	78	54	74	56	76	44
5.....	75	31	79	37	75	36	73	46	80	35	79	43	78	48	78	53	78	43	80	54	78	57	77	55	79	46
6.....	78	33	76	40	74	40	73	52	74	42	.....	.....	75	45	74	48	75	43	72	49	73	55	73	57	76	48
7.....	50	26	64	41	54	39	56	36	64	33	.....	.....	68	54	72	49	63	44	79	59	71	52	78	60	74	50
8.....	53	18	55	32	50	18	49	27	52	17	.....	.....	58	34	49	40	56	25	60	49	52	44	60	49	55	44
9.....	62	39	58	32	58	18	55	37	69	33	.....	.....	69	49	57	44	65	31	61	46	56	46	62	46	56	40
10.....	63	33	67	44	68	41	70	49	77	35	.....	.....	70	50	70	54	79	57	74	52	68	55	71	55	70	48
11.....	50	30	68	56	52	42	52	35	62	31	.....	.....	66	60	71	45	67	41	71	51	70	47	73	59	71	55
12.....	32	25	46	34	32	22	35	29	67	30	.....	.....	48	40	60	42	50	32	60	44	62	41	63	51	60	35
13.....	25	19	47	32	34	25	36	34	31	25	.....	.....	41	34	49	42	35	29	76	60	73	54	74	57	72	40
14.....	19	13	46	30	25	25	35	16	27	15	.....	.....	42	30	44	29	30	21	66	34	59	31	67	44	43	41
15.....	15	10	32	21	26	13	29	13	23	15	.....	.....	31	25	37	26	25	19	47	28	41	27	50	33	46	22
16.....	24	5	27	22	26	13	26	11	31	8	.....	17	30	19	36	23	31	14	58	30	41	25	61	33	34	26
17.....	26	2	28	14	17	2	17	11	37	10	.....	.....	35	20	36	22	44	16	34	22	36	22	36	28	30	17
18.....	42	16	45	13	33	2	28	10	46	14	.....	.....	50	29	54	22	56	23	47	18	52	22	43	24	45	14
19.....	48	31	55	15	45	8	49	27	49	26	.....	.....	59	34	63	38	70	32	65	41	61	40	64	39	58	20
20.....	48	24	65	31	48	24	54	26	51	34	.....	.....	62	39	67	46	73	35	68	50	67	50	63	49	63	38
21.....	24	15	37	27	22	9	26	18	44	23	37	.....	42	36	53	34	57	28	58	43	60	36	66	51	46	34
22.....	34	9	64	27	27	14	23	13	38	18	35	23	36	30	39	29	44	23	49	30	41	32	67	33	34	30
23.....	50	31	39	32	35	7	35	20	64	30	51	31	48	34	48	30	68	30	43	28	48	32	41	30	46	23
24.....	60	32	63	27	46	25	47	35	71	36	68	40	61	33	66	42	73	40	55	34	65	39	50	34	54	28
25.....	46	32	67	30	50	26	57	36	72	52	61	39	56	35	63	40	69	36	66	41	66	45	62	39	65	36
26.....	45	31	67	31	60	30	63	47	70	56	71	57	70	60	68	57	68	49	74	50	71	56	65	46	70	46
27.....	31	25	68	56	43	42	60	28	66	29	66	32	70	62	65	52	65	33	71	58	66	58	70	50	68	54
28.....	41	21	40	32	37	23	37	27	38	29	37	32	60	32	52	36	34	30	65	42	64	37	72	49	46	34
29.....	51	28	46	32	40	17	39	26	36	28	45	37	44	33	47	39	37	31	49	43	46	39	51	44	50	40
30.....	50	31	48	37	45	21	46	39	45	35	51	43	55	42	52	44	49	36	50	45	50	44	55	46	48	46
31.....																										
Means.....	47.7	24.2	55.8	32.8	46.1	23.5°	48.2	30.4	56.7	29.1	.....	.....	57.6	38.9	59.1	40.4	58.8	33.0°	62.6	42.6	60.9	43.0	63.2	45.7	57.7	38.0

Climatological Data for November, 1909.
DISTRICT No. 7, LOWER MISSISSIPPI VALLEY.

ISAAC M. CLINE, District Editor.

GENERAL SUMMARY.

Warm weather prevailed throughout the district during the first decade and the monthly maximum temperatures occurred at all stations during this time. A period of decidedly cooler weather, which reached Colorado and New Mexico on the 13th, extended eastward over the district on the 14th and 15th, and the monthly miminum temperatures occurred generally from the 13th to 18th. Killing frosts occurred during this period in many localities, with minimum temperatures below 32° southward into northern Louisiana. Moderate temperatures prevailed during the third decade, except that a cold wave overspread the northwestern portion of the district about the 28th. Monthly mean temperatures and departures from the normal for the various States and areas are reported as follows: Colorado area, 40.3°, +2.6°; New Mexico area, 46.2°, +2.5°; Texas area, 54.3°, +5.6°; Kansas area, 54.0°, +6.2°; Oklahoma area, 55.8°, +6.6°; Missouri area, 56.2°, +10.3°; Tennessee area, 58.6°, +9.8°; Arkansas, 59.3°, +8.7°; Mississippi area, 61.6°, +7.5°; Louisiana, 64.0°, +5.6°. The precipitation was above the normal generally over the northern and below over the southern portions of the district. Precipitation occurred generally from the 10th to the 16th, and again over the western and northern portions of the district from the 27th to the close of the month. Scattered showers occurred on many other days, except that there was no precipitation in the Colorado and New Mexico areas from the 1st to the 9th, and in the New Mexico area from the 16th to the 26th. There was very little rain in the southeastern portion of the district during the last decade. Monthly precipitation and departures from the normal for the various States and parts of States are reported as follows: Colorado area, 1.90, +1.46; New Mexico area, 1.26, + 0.21; Texas area, 3.52, +0.23; Kansas area, 5.67, +4.54; Oklahoma, 5.70, +3.30; Missouri area, 4.79, +1.87; Tennessee area, 5.02, +0.22; Arkansas, 3.75, 0.00; Mississippi area, 2.46, −1.65; Louisiana, 1.64, −2.14.

TEMPERATURE.

Abnormally high temperatures prevailed during the month, and over a large part of the district the mean temperature was higher than during any previous November. The excess in temperature was more than 8° over eastern and south-central Oklahoma, northeastern Arkansas, the northeast portion of the Kansas area, and the Missouri and Tennessee areas; elsewhere the excess ranged from 1.5° to 7.7°, being smallest over southwestern Oklahoma and the eastern portion of the Colorado area. The highest monthly mean temperature was 69.9° at Burrwood, Plaquemines Parish, La., and the lowest was 27.8° at Lake Moraine, El Paso County, Colo. The monthly maximum reached or exceeded 85° at some stations in each State in the district, except in the Colorado area, and the maximum was 90° or above at some stations in Arkansas, Louisiana, and Oklahoma, and in the Kansas and Texas areas. The highest temperature recorded was 96° at Kingman, Kingman County, Kans., on the 4th, and a maximum temperature of 94° was recorded at Channing, Hartley County, Tex., on the 2d. The average daily maximum exceeded 70° in some localities in Oklahoma, and the Texas, Missouri, and Tennessee areas, and was above 75° generally over Louisiana and the Mississippi area. The lowest temperature recorded was −9° at Lake Moraine, El Paso County, Colo. Minimum temperatures of 32°, or lower, occurred generally, except in southern Louisiana. Temperatures of zero, or below, were recorded in the mountainous portions of the Colorado and New Mexico areas, and in the more elevated portions the monthly mean minimum was below 20°. Killing frosts occurred in all portions of the district, except in southern Louisiana.

PRECIPITATION BY DRAINAGE AREAS.

Arkansas River and tributaries.—Excessive precipitation occurred generally over the Arkansas Basin, except in Arkansas. The precipitation from 30 stations in Colorado averaged 1.93 inches and was 1.2 inches above the normal. Three stations reported more than 3 inches and 2 stations less than 1 inch. Along the Arkansas proper in Kansas and Oklahoma the amounts from 67 stations averaged 5.58 inches, and the excess was 4.4 inches. Seventeen stations reported more than 7 inches and no station less than 2 inches. Over the Cimarron Basin the average amount determined from the records of 15 stations was 5.10 inches, and the excess was 4.2 inches. In those portions of this drainage area that lie in Colorado and New Mexico, the precipitation was generally about 1 inch. In Kansas the amounts ranged from 2.68 to 11.69; in Oklahoma they were above 6 inches, except at 3 stations, and only 1 station reported less than 2 inches. Over the headwaters of the Canadian, in New Mexico, the precipitation from 34 stations averaged 1.27 inches and was about 0.5 inch above the normal; from the Colorado line to its junction with the Arkansas, the precipitation reported from 24 stations averaged 5.14 inches and was 2.7 inches above the normal. Two stations reported more than 11 and only 2 stations less than 3 inches. Over the basin of the Arkansas below the Oklahoma line, the precipitation from 15 stations averaged 3.6 inches and was about 0.2 inch below the normal.

Red River and tributaries.—Heavy precipitation occurred throughout this drainage area, except over those portions that lie in Arkansas and Louisiana. The average amount determined from the records of 39 stations above the Arkansas line was 4.77 inches, and the average excess was 2.6 inches. Below the Texas line, the amounts decreased from about 3 inches in Arkansas to less than 2 inches in Louisiana; the precipitation from 17 stations averaged about 2 inches, and was less than half the normal amount.

Mississippi south of St. Louis and small tributaries.—Excessive precipitation occurred over this drainage area, except in Mississippi, southern Arkansas, and Louisiana. In the immediate Mississippi Valley the precipitation from 34 stations averaged 3.80 inches; 16 stations reported more than 4 and only 2 less than 2 inches. There was an excess at most stations north of the 35th parallel, but southward to the coastal plain there was a general deficiency, amounting to more than 1 inch at many stations. In the Valley of the Meramec the precipitation averaged 4.47 inches and the excess was 1.82 inches. In the White River Valley the precipitation was uniformly heavy, except at a few stations; the amounts from 19 stations averaged 4.42 inches, and 7 stations reported more than 5 inches. The precipitation was above the normal, except at a few widely scattered stations, the departure being about 1.2 inches. Over the Yazoo Basin the precipitation ranged from 1.06 to 6.48 inches, and the average determined from the records of 16 stations was 2.66 inches. There was a deficiency throughout this basin which amounted to more than 2 inches in some localities, and averaged about 1.7 inches. The precipitation was light throughout the Valley of the Black, and the average from 8 stations was 1.45 inches; about half the normal amount. Over the headwaters of the Ouachita, in Arkansas, the precipitation ranged from 3 to 4 inches, and the amounts decreased southward to less than 1 inch in northern Louisiana. The amounts from 16 stations averaged 2.70 inches; 1 station reported more than 4 inches and 2

less than 1 inch. There was a general deficiency which ranged from about 0.50 inch over the headwaters to more than 3 inches in northern Louisiana, the average departure being about 1.5 inches.

Louisiana coastal plain.—Over the greater portion of this area the precipitation was light and the amounts ranged from none at Reserve, St. John Baptist Parish, to 4.18 inches at Jennings, Calcasieu Parish. The amounts from 24 stations averaged 1.77 inches. Two stations reported 4 inches, or more, and 5 less than 1 inch. The precipitation was below the normal, except at 2 stations, the average deficiency being 1.6 inch.

SNOWFALL.

Over the mountainous portions of Colorado and New Mexico areas, the snowfall was heavier than is usual for November, averaging 21.9 inches for the Colorado area and 9.9 inches for the New Mexico area. There was a severe snowstorm, for the time of the year, over the northwestern counties of Texas on the 28th and 29th, the amounts being slightly over 6 inches in the northern portion of the Panhandle; the heaviest fall reported was 6.4 inches at Dalhart. Light snows occurred in many localities in Kansas, the average fall being 0.5 inch. In Oklahoma snow occurred at but 2 stations, Supply reporting a trace and Kingfisher 7.0. This occurred during the storm of the 12th to 16th.

RIVERS.

All streams in that portion of the Arkansas basin that lie in Kansas and Oklahoma were bank full at the close of the month, and freshets occurred in some places as a result of the excessive precipitation over those areas. At Little Rock the stage was slightly above or below 1 foot until the 18th when a rapid rise commenced and a stage of 10.8 feet was recorded on the 22d. From the 23d to the close of the month the river fell slightly and the stage was 4.8 feet on the 30th.

No decided change occurred in the stages of the Red River. The extreme stages, in feet, were as follows: Dennison, −0.5 on the 14th to 2.9 on the 20th; Arthur City, 4.8 on the 1st to 8.9 on the 22d; Lewis Ferry, 3.8 on the 1st to 7.0 on the 25th; Fulton, 4.9 on the 9th to 9.0 on the 26th; Shreveport, −4.3 on the 1st to −0.6 on the 30th; Alexandria, −0.6 on the 3d to 1.7 on the 30th.

There was a slight rise in the Ouachita at Camden from the 15th to the 22d, when a stage of 8.8 feet was recorded; otherwise changes in the stages of this stream were slight.

The lower Mississippi rose during the greater part of the month. The rises in feet occurred as follows: Memphis, from 6.2 on the 3d to 14.7 on the 25th; Helena, 6.3 on the 6th to 16.9 on the 26th; Arkansas City, 6.8 on the 6th to 20.2 on the 28th; Natchez, 4.6 on the 8th to 16.5 on the 30th; Baton Rouge, 4.5 on the 18th to 9.9 on the 30th; and New Orleans, 3.8 on the 8th to 5.5 on the 30th. Small streams in some portions of Mississippi were very low.

NOTES.

The rise in the Arkansas River during the second decade enabled navigation to be resumed, it having been suspended for many weeks on account of the low water.

Snowstorms in northwestern Oklahoma from the 12–16th and in the Texas Panhandle during the 28th and 29th caused some injury to stock interests.

RELATIONS BETWEEN PRECIPITATION, RUN-OFF, AND DISCHARGES IN THE TALLAHATCHIE DRAINAGE DISTRICT.

By A. L. DABNEY, Assistant Chief Engineer, Tallahatchie Drainage Commission.

This district comprises about 1,900 square miles in the north end of what is commonly known as the "Yazoo Delta" in Mississippi. It exists under a special law passed by the Mississippi Legislature and approved by the Governor, March 2, 1908. The territory embraced is all of Tunica, Quitman, and Coahoma counties and parts of De Soto, Tate, Panola, and Tallahatchie counties. It is bounded on the north by the Mississippi and Tennessee State line, on the east by the base of the hills bordering the Mississippi River Valley, on the west by the Mississippi River, on the south by the south lines of Coahoma and Tallahatchie counties.

There is a natural divide which runs approximately north and south through the district. The area west of the divide, about 270,000 acres, is made tributary to Sunflower River, while the remainder of the district, about 900,000 acres, is tributary to Coldwater and Tallahatchie rivers, the latter joining with Yalobusha River a short distance below this district to form the Yazoo, which, after being joined by the Sunflower much lower down, discharges into the Mississippi through the Yazoo Canal in front of Vicksburg.

The hill area drained by Coldwater and Tallahatchie rivers and minor streams entering the district is about 3,800 square miles, which, added to the 1,400 square miles within the district and east of the main divide, gives a total of 5,200 square miles tributary to Tallahatchie River above Philipp.

Drainage commissioners.—There are 11 commissioners, the larger counties having 2 each and the counties with a small area in the district having 1 each. The commissioners are appointed by the governor, and hold office 4 years.

Funds for the work.—The law creating the district provides for an annual "flat" acreage tax not to exceed 7 cents, to pay for preliminary surveys and administration, and to be reduced in the judgment of the drainage commission. There are to be 2 betterment assessments—1 for the main drains and 1 for the laterals. Construction work will be paid for by a tax levied on the betterment, not to exceed 10 per cent per year. Bonds may be floated, to be refunded from these taxes.

Surveys.—The surveys of the Mississippi River Commission and the levee district afforded a line of control levels along the west side of the district. A line of precise levels was run the length of the district near the east side, and numerous cross lines were run connecting these two main lines, giving a comprehensive system of control levels.

By a cooperative agreement, the U. S. Geological Survey began a topographical survey of this district, and about half the territory has been covered thus far with this system. The other half has been covered with a system of transverse lines with levels, about every 2 miles, and transverses of all important streams. It is proposed to extend the detail topographic survey over this area also.

A number of cross sections of the more important streams have been taken, the location of each section being shown on the map by its number.

Data for drainage plans—Before attempting to solve the drainage problems presented, it was evident that as much data on rainfall and run-off as possible should be available. For the rainfall, recourse was had to the records of the U. S. Weather Bureau. For the run-off, to the water supply papers of the U. S. Geological Survey, Reports of the U. S. Department of Agriculture Drainage Investigations, and to actual gagings in cooperation with the U. S. Geological Survey, Hydrographic Department.

Rainfall.—Daily records of the rainfall were procured from the local offices, U. S. Weather Bureau for Memphis and Vicksburg since 1871, for Helena, Arkansas City, Austin, Clarksdale, Swan Lake, and Greenwood since 1897, and for about 15 cooperative stations on the watersheds of Coldwater, Tallahatchie, and Yalobusha rivers since January, 1907.

From the older records summaries were made giving, for each station and each month, the following data:

Heaviest precipitation in 24 hours, 48 hours, and and 72 hours.

Number of days with more than 1 inch, 2 inches, up to 6 inches.

Total for the month.

For the later and current records, a graphic daily record was made and is being continued for each station. Also, this district has established 14 additional stations on the watersheds mentioned, from which a card report is received for each day that precipitation is recorded. The daily records from these stations are sent monthly to the U. S. Weather Bureau.

Stream discharge (run-off).—As soon as the system of control levels was sufficiently advanced, a party was organized to establish river gages. Thirteen gages were set from which, together with 3 gages formerly established by the U. S. Geological Survey, weekly card reports are received giving daily gage readings. About 20 additional gages were set from which only high water readings were received. All of the gages are marked to true elevation by the datum used (zero mean Gulf level), so that every gage reading is a record of the water at that station above mean Gulf level, and the ascertaining of river slopes and relation between the elevation of a river at any time and locality and elevations of lands in the surrounding country is much simplified.

Continuous hydrographs are kept for all of the daily gages, being curves with number of days for abscissas and heights on the gages for ordinates.

Frequent observations on discharge have been made by the district engineers and the U. S. Geological Survey Engineers, and fairly good station rating curves constructed. Special efforts were made to get a discharge observation at each station at the highest stage reached during 1909, with success for most stations, so that a very satisfactory comparison may be made of the precipitation during such a storm as occurred in the winter of 1909 and the maximum run-off produced.

The comparison is shown in the following table:

Precipitation and run-off for maximum stages, February and March, 1909.

Place.	River.	Rainfall on catchment (in inches). February, 1909.						Drainage area.	Maximum discharge.	Maximum run-off.
		12	13	14	15	16	Total			
								Sq. m.	*Cu. ft. per. sec.*	*Ins.*
Pratts Bridge*.	Coldwater.	.....	.....	.....	.....	.....	.....	1,000	12,500	0.465
	Hernando.	.....	1.15	.90	1.25	.....	3.30			
	Holly Spgs	.....	1.29	1.04	1.32	.....	3.65			
Batesville*.....	Tallahatchie	.....	.....	.....	.....	.....	.....	1,620	13,000	0.30
	Ripley.....	.45	.50	1.50	.20	2.65				
	Pontotoc..	.....	.....	1.70	.22	.....	1.92			
	Batesville.	.....	.40	.27	1.97	.20	2.84			
Murphrees Bge.	Yocona.....	.....	.....	.....	.....	.....	.....	720	4,000†	0.21
	Oxford....	.11	.95	1.57	.47	.....	3.10			
	Water Val.	.....	.....	2.48	.10	.....	2.58			
Charleston....	Tillatoba....	.....	.....	.....	.....	.....	.....	170	4,300	0.94
Mouth of Coldwater.....	Tallahatchie	.....	.....	.....	.....	.....	.....	4,255	23,000	0.20
Philipp.....	Tallahatchie	.....	.....	.....	.....	.....	.....	5,200	23,000	0.17
Grenada.....	Yalobusha..	.....	.....	.....	.....	.....	.....	1,525	8,100	0.20
Greenwood.....	Yazoo.....	.....	.....	.....	.....	.....	.....	7,200	28,600	0.15

*Near where river leaves hills. †Probably not the maximum.

Discharge measurements were made with the small Price current meter, subdividing the cross sections into 10-foot widths and measuring velocity at six-tenths of depth below surface of water in each such width.

Part of the maximum flood discharge in 1909 was overflow water which was measured, at several of the stations, as it passed through railroad trestles, and at stations not on railroads by other special arrangements. It is believed that these discharge measurements are all approximately correct, though those for overflow water are not thought to be correct within a smaller limit than 20 per cent for several of the stations. This would make a possible error of 10 per cent for some of the results given in the table.

Careful inquiry among the residents led to the conclusion that the water of November and December, 1906, was the largest flood on record in the streams coming from the hills, except when augmented by Mississippi River overflows which occurred before the perfection of the levee system. Reliable high-water marks for the 1906 flood were found at or near a number of gaging stations, the gages on the Tallahatchie River giving very valuable records. The Yazoo and Mississippi Valley Railroad also supplied records which checked closely with those from other sources. This flood gave stages from 1½ to 3 feet (5 feet at 1 station, Pratts Bridge) above that of 1909. By an extension of the rating curve for each station, up to the 1906 stage, an estimate was made of the discharge in the channel for the flood of that year, to which was added the estimated overflow. The overflow item, in most cases, can only be regarded as an "intelligent guess," yet one which is believed to be well on the safe side.

The following table shows the result obtained as the run-off from the maximum flood of past experience (of which there is any record), together with the precipitation which produced it:

Precipitation and run-off for maximum stages, November and December, 1909.

Place.	River.	Rainfall on catchment (in inches). November, 1906.						Discharge area.	Maximum discharge.	Maximum run-off.
		17	18	19	20	21	Total			
								Sq. m.	*Cu. ft. per. sec.*	*Ins.*
Pratts Bridge*.	Coldwater.	.....	.....	.....	.....	.....	.....	1,000	20,000	0.75
	Hernando.	1.65	3.70	.40	.80	2.00	8.55			
	Holly Spgs	1.45	2.44	.46	.15	3.45	7.95			
Batesville*.....	Tallahatchie	.....	.....	.....	.....	.....	.....	1,620	23,000	0.53†
	Ripley.....	.....	3.80	.90	1.30	1.80	7.80			
	Pontotoc..	1.35	.95	1.10	.....	.....	3.40			
	Batesville.	.13	3.04	.18	.31	5.78	9.44			
Murphrees Bge.	Yocona.....	.....	.....	.....	.....	.....	.....	720	10,000	0.53
	Oxford....	.....	4.20	.41	1.09	3.40	9.10			
	Water Val.	2.50	.15	.40	2.70	.....	5.75			
Charleston.....	Tillatoba....	.....	.....	.....	.....	.....	.....	170	9,000‡	2.00
Mouth of Coldwater.....	Tallahatchie	.....	.....	.....	.....	.....	.....	4,255	30,000	0.26
Philipp.....	Tallahatchie	.....	.....	.....	.....	.....	.....	5,200	30,000	0.22
Grenada.....	Yalobusha..	.....	.....	.....	.....	.....	.....	1,525	20,000§	0.50
Greenwood.....	Yazoo.....	.....	.....	.....	.....	.....	.....	7,200	35,000	0.18

*Near where the river leaves hills. †Assumed by analogy to Tallahatchie River.
‡Assume 2 inch run-off. §Assume one-half inch run-off.

The problem.—The problem of drainage in this district is, for the western portion, comparatively simple. The Sunflower River has ample capacity for any reasonable run-off, and there is a good fall to this stream for all of the territory tributary.

In the eastern part of the district the problem is much more complicated because of the water rushing out of the hills after every considerable storm and inundating a large portion of the lands in the district. As will be noticed from the table, the discharge at stations near the lower end of the district is much less than the sum of the increments, this reduction of flow being accounted for by storage of water either in lakes and swamps or in a very slowly moving volume spread over a wide expanse of level land.

This problem has only been under consideration for a few months and has not yet been finally solved. A tentative plan for enlarging the channels and shortening them by bypasses for high-water flow was worked out, with the idea of confining the flow for an average high water within the channels, anticipating that an extension of the plan would be made by adding levees, artificial storage reservoirs, or both. Mr. A. E. Morgan, Supervising Drainage Engineer, U. S. Department of Agriculture, was called in to scrutinize this plan and, after an examination of the hill watershed, was convinced that future drainage developments in the valleys will make the occurrence of such floods as that of 1906 more frequent than the engineers of this district had considered at all probable, therefore that a plan which provides for the average water only will prove inadequate more frequently than was expected. He proposed levees as a primary rather than a secondary feature, and studies are now being made along this line. The plan proposed is to convey the flood waters from the hills through the district in "floodways" between parallel lines of levee. In this plan, also, artificial storage must be resorted to.

Needs for drainage.—The Tallahatchie Drainage District is protected from the Mississippi overflow by levees which have been constructed at great cost. As a result, about one-third of the land has been brought into cultivation. The other two-thirds are generally too low to cultivate without drainage, which, in the nature of the case, can only be accomplished by treating the problem comprehensively, and not by small local districts, as is done in some other localities. The two-thirds of this district which can not be cultivated for lack of drainage have been paying levee taxes for 25 years, the same as has the one-third which is favored with fairly good drainage facilities.

TABLE 1.—*Climatological data for November, 1909. District No. 7, Lower Mississippi Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Colorado.																			
Blaine	Baca	3,935	17			79	4	16	16	44	1.40	+ 0.93	0.90	2.0	3	14	6	10	w.	M. M. Meyers.
Buena Vista	Chaffee	7,955	9																	M. D. Bowen.
Calhan	El Paso	6,700	2																	H. B. Rice.
Canon City	Fremont	5,329	21	46.6	+ 4.5	78	2†	14	16	37	1.48	+ 1.09	0.43	20.5	4	15	8	7	w.	Thomas J. Tynan.
Colorado Springs	El Paso	6,098	30	40.2	+ 2.8	70	6	6	17	40	2.30	+ 2.02	0.94	21.8	5	12	8	10		Colorado College.
Cripple Creek	Teller	9,396	9								1.18	+ 0.86	0.55	20.7	6					F. G. Willis.
Cuchara Camps	Huerfano	8,200									2.76		0.67	33.2	7	19	6	5	sw.	George A. Mayes.
Eads	Kiowa	4,209	2	40.2		76	3†	10	30	49	0.36		0.36	0.0	1				se.	W. H. Lauck.
Fairview	Custer	9,500									4.18		1.00	45.5	7	17	4	9	e.	Elizabeth L. Gray.
Florence	Fremont	5,185		51.2		79	3†	20	15†	37	1.74		0.68	11.5	4	15	0	15	e.	W. G. Fish.
Garfield	Chaffee	9,510									2.49		0 65	37.0	8	18	6	6		Lloyd N. Felton.
Glen Eyrie	El Paso	6,500	17	39.3	+ 1.3	74	3	4	17	47	2.63	+ 2.30	0.99	28.5	5	16	6	8		C. Nickell.
Hamps	Elbert	5,400	16	36.3	+ 0.3	74	6	− 1	17	50	1.15	+ 0.96	0.70	13.0	3	16	4	10	s.	W. Hamp.
Hermit Lake	Custer	10,000																		Jno. E. Graham.
Hoehne (near)	Las Animas	5,700	17	46.8	+ 6.5	83	10	15	16	53	2.10	+ 1.50	1.40	18.5	4	17	4	9	sw.	S. W. DeBusk.
Holly	Prowers	3,380	14	43.9		81	5	11	16	52	1.72	+ 1.12	0.90	1.5	5	20	3	7	se.	R. I. Arneson.
Lake Moraine	El Paso	10,265	15	27.8	− 1.7	59	2	− 9	13	41	2.85	+ 2.11	0.77	43.8	8	7	17	6	sw.	Joseph Strong.
Lamar	Prowers	3,592	19	44.4	+ 2.3	80	3†	9	16	55	1.45	+ 1.02	0.80	4.0	4	19	3	8	sw.	J. T. Lawless.
Las Animas	Bent	3,899	41	43.3	+ 5.1	80	3	5	16	50	2.00	+ 1.73	0.42	18.0	8	14	4	12	e.	F. M. Tague.
La Veta Pass	Costilla	9,000									2.43		0.70	31.9	5	17	8	5	w.	Norvin B. Lively.
Leadville	Lake	10,248	13	29.2		58	3	− 3	16	38	1.50		0.50	27.8	11				n.	U. S. Weather Bureau.
Limon (near)	Elbert	5,360	2	41.6		74	6	11	17	37	0.70		0.27	5.5	3	21	0	9	sw.	John Lesher.
Marshall Pass	Saguache	10,846	6								1.77		0.42	36.0	6	14	13	3	w.	W. D. Lillard.
North Lake	Las Animas	8,700									3.22		1.15	29.5	4	15	8	7		Guy H. Crane.
Pueblo	Pueblo	4,734	21	43.2	+ 3.9	78	6	10	16	47	1.53	+ 1.20	0.54	9.8	6	11	11	8	nw.	U. S. Weather Bureau.
Rockyford (near)	Otero	4,177	20	41.4		78	3†	− 1	16	51	1.07		0.40		6	22	1	7	n.	P. K. Blinn.
St. Elmo	Chaffee	9,500									2.42		0.68	35.7	10	17	8	5	w.	Daniel Clark.
Salida	do	7,035	11	37.8	+ 0.3	74	3	− 2	17	52	3.13	+ 2.56	1.60	31.8	6	20	4	6	w.	M. D. L. Buell.
Santa Clara	Huerfano	8,250	14																	Lincoln Morris.
Sheridan Lake	Kiowa	4,065	8	40.0		77	3	1	16	45	1.51		0.86	5.0	4				nw.	Howard Gamble.
Stonewall	Las Animas	8,000	3								1.89		0.60	28.0	6	14	11	5		J. W. Shouse.
Trinidad	do	5,994	14								1.21	+ 0.32	0.38	19.0	5	16	5	9		Mrs. Maggie Butler.
Victor (near)	Teller	10,106	5	38.0		63	3	11	16	27	1.26		0.49	19.5	7	18	5	7	e.	Fred Jones.
Vilas	Baca	3,935	19								1.12	+ 0.61	0.75	0.0	2	12	13	5	sw.	Carrie Konkel.
Westcliffe	Custer	7,864	15	35.2	+ 3.1	71	3	− 7	16	48	2.26	+ 1.45	0.80	34.0	5	11	11	8	nw.	Zack Jordan.
Winfield	Chaffee	9,765									1.07		0.32	17.8	11	10	9	11	w.	John G. Payne.
Wortman	Lake	11,250	9								1.63		0.55	29.6	5	9	5	16	nw.	George C. Wortman.
New Mexico.																				
Abbott	Mora	5,771				84	19	15	16		1.28		0.72	12.0	4	23	5	2	w.	Agt. E. P. & S. W. Ry.
Albert	Union	4,700	19	49.8	+ 2.9	78	3†	20	29	38	2.21	+ 0.45	0.63	13.0	5	18	5	7	s.	Andrew Knell.
Arch (near)	Roosevelt			51.0[b]		80[b]	4†	25[b]	28	50[b]	1.55		1.15		2	20	0	10	sw.	Wm. A. Elliott.
Aurora	Colfax	8,849									1.35		0.66	16.0	3	12	10	8	nw.	Miss Juanita Lucero.
Bell Ranch	San Miguel	4,500	5	48.6		80	5†	18	30	52	0.51	− 0.65	0.24	4.0	5	17	7	6	sw.	C. M. O'Donel.
Black Lake	Colfax	8,348									0.72		0.27	8.6	3	14	12	4	w.	Ralph T. Martinez.
Cabeza	San Miguel	5,406									1.05		0.45	7.2	6	17	5	8	ne.	Agt. E. P. & S. W. Ry.
Campana	do	4,493									1.64		0.60	12.0	6	15	3	12	w.	Do.
Chacon	Mora	9,000									1.08		0.39	13.7	4	14	11	5	w.	Alfred Lucero.
Cimarron (near)	Colfax	6,385	4	44.1		77	2	14	17	49	1.01		0.77	9.0	4	17	2	11	w.	Wm. French.
Clayton	Union	5,178	5	46.2		75	6	22	29	41	2.04		0.96	6.0	7	22	3	5	w.	Dr. W. W. Chilton.
Cuervo	Guadalupe	4,849		52.2		78	4†	26	17†	38	0.30		0.27	1.2	4	21	4	5	w.	Agt. E. P. & S. W. Ry.
Dawson	Colfax	6,396									1.20		0.50	9.0	4	17	7	6		Do.
Dorsey (near)	do	6,000	8																	Geo T. Lambert.
Elizabethtown	do	8,465	3	32.4		66	2†	− 4	16	54	1.95		1.20	18.5	4	15	9	6	w.	Miss Mabel Carrington.
Fort Union	Mora	6,835	40	43.7	+ 3.4	72	1	10	30	41	0.42	− 0.27	0.20	3.0	3	19	3	8	w.	M. C. Needham.
Hayden	Union	4,444																		George L. Cook.
Lake Alice	Colfax	7,160									1.93		1.17	14.5	5					Raton Water Co.
Logan	Quay	3,851	3	51.2		82	6	11	30	49	1.83		0.81	7.5	3	22	3	5	s.	John B. Reneau.
Los Alamos	San Miguel	6,789	5								0.18		0.18	3.0	2					Wm. Frank, sr.
Maxwell (near)	Colfax	5,894	3								0.50		0.50	7.0	2					D. N. Jackson.
Melrose	Curry	4,400	1	50.4		81	4†	10	30	48	1.10		0.72	4.0	3	25	1	4	s.	Miss Lois E. Porter.
Miami Ranch	Colfax	6,000	2	44.2[a]		76[a]	2	8[a]	29	48[a]	0.99		0.76	10.5	3	14	12	4	s.	Farmers' Devel. Co.
Montoya	Quay	4,335									0.40		0.30	4.0	2	24	2	4	sw.	Agt. E. P. & S. W. Ry.
Nara Visa	do	4,225	4	49.8		79	6	20	30	37	1.65		0.50	9.0	5	21	0	9	s.	Willard Belknap.
Raton	Colfax	6,660	12	44.6	+ 2.9	73	2†	19	16	41	1.27	+ 0.98	0.81	9.0	4	23	3	4	w.	Prof. R. C. Crum.
Rociado	San Miguel	8,200	6																	Chas. F. Rudolph.
Roy	Mora	5,884									1.96		0.90	14.0	5	19	5	6	n.	Agt. E. P. & S. W. Ry.
San Jon	Quay	4,200	3	51.8		81	5†	19	30	44	1.13		0.45	4.0	4	19	4	7	sw.	Jesse T. White.
Salano (1)	Mora	5,622		45.6		75	3†	12	29†	39	2.33		0.93	17.0	5	23	1	6	s.	F. M. Hughes.
Salano (2)	do	5,622																		Agt. E. P. & S. W. Ry.
Springer	Colfax	5,857	14	41.4	+ 0.9	75	4	9	29	50	1.13	+ 0.54	0.63	12.0	4	26	2	2	w.	Agt. A. T. & S. F. Ry.
Taylor	do	5,661									1.30		0.80	16.0	4	19	6	5	sw.	Agt. E. P. & S. W. Ry.
Trementina	San Miguel		2								0.35		0.35	2.0	1	16	12	2	e.	Miss Alice Blake.
Tucumcari (1)	Quay	4,194	5	53.0		85	4	17	30	43	1.59		0.87	13.0	3	24	3	3	sw.	John F. Seaman.
Tucumcari (2)	do	4,194									2.47		1.02	21.5	6	23	2	5	sw.	Agt. E. P. & S. W. Ry.
Vermejo Park	Colfax	7,600	6	39.8		70	2	11	16	43	1.42		0.45	16.0	4	16	4	10	w.	H. W. Adams.
Wagon Mound (near)	Mora	6,300	1	42.9		74	4	9	29	52	1.09		0.96	6.0	2	17	5	8	sw.	Guy L. Barnes.
Texas.																				
Amarillo	Potter	3,676	17	50.4	+ 6.6	85	6	26	16	45	3.25	+ 2.09	1.55	6.2	6	16	7	7	s.	U. S. Weather Bureau.
Arthur	Lamar	590	17								2.46	− 0.53	0.70	0.0	6	9	5	16		J. B. Hodnett.
Bonham	Fannin	566	6	60.3[a]		85[a]	2†	24[a]	18	46[a]	2.07		0.73	0.0	5	12	5	13	se.	B. S. Lovelace.
Canadian	Hemphill	2,339	2								6.07		2.56	0.0	7					C. M. Vance.
Channing	Hartley		4	57.2[c]		94[d]	2	22	16	57[d]									n.	C. F. Land Inv. Co.
Childress	Childress	1,869	16								2.45	+ 1.26	2.00	0.0	2					W. E. Davis.
Chillicothe	Hardeman	1,406	1								4.57		1.54	0.0	7					A. B. Conner.
Clarkesville	Red River	442	4	61.2		92	2	32	17†	47	2.75		0.93	0.0	5	14	8	8		J. B. McClelland.
Clarendon	Donley	2,719	4	54.8		84	1†	25	17	40	6.63		4.00	0.0	6	18	7	5	se.	J. W. O'Neill.
Claude	Armstrong	3,397	4								4.22		1.75	0.0	3					Agt. F. W. & D. C. Ry.
Dalhart	Dallam	3,998	4	45.4[a]		80[a]	6	14	30	47[a]	1.21		0.50	6.4	5	14	6	10	n.	F. L. Kennard.
Denison	Grayson		1								1.54		0.70	0.0	7	9	2	19	s.	Wm. S. Faires.
Henrietta	Clay	915	14																	C. K. Brown.
Hereford	Deaf Smith	3,750	4																	A. C. Elliott.
Higgins	Lipscomb	2,760	1																	L. D. Shaw.
McLean	Gray		2																	W. R. Patterson.
Memphis	Hall	2,067	4	53.8		83	6	27	19	37	4.36		2.35	0.0	5	21	1	8		Agt. Ft. W. & D. C. Ry.
Miami	Roberts	2,743	3	51.4		84	4	24	17	42	4.58		2.02	0.0	7	23	0	7	s.	Jerome Harris.
Mobeetie	Wheeler										5.20		2.30	0.0	3	17	4	9	ne.	R. A. Choate.
Nazareth	Castro		3	52.6[c]		83[c]	6	23[c]	30	46[c]	2.92[c]		1.50[c]	1.5[c]	4[c]	22[a]	2[a]	5[a]	sw.	P. A. Kalein.

TABLE 1.—*Climatological data for November, 1909. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Texas—Cont'd.																				
Ochiltree	Ochiltree	.....	1	.....	.....	.....	.....	.....	.....	.....	3.62	.....	1.50	0.0	4	.....	.....	.....	.....	S. T. Allen.
Pampa	Gray	3,226	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. E. Finley.
Paris	Lamar	592	20	60.4[a]	+ 5.9	84[a]	3†	29	19	42[a]	2.78	− 0.10	0.96	0.0	6	13	1	16	s.	N. O. Enloe.
Plemons	Hutchinson	.....	2	48.4	.....	84	6	20	17	51	3.21	.....	1.05	3.0	6	18	5	7	s.	C. S. Solomon.
Quanah	Hardeman	1,563	4	53.8	.....	91[a]	1	22	16	49[a]	4.30	.....	1.40	0.0	6	19	2	9	s.	E. E. Miller.
Sherman	Grayson	745	16	59.6	+ 4.2	82[a]	3†	32	18	30[a]	1.87	− 0.53	1.13	0.0	4	9	2	19	s.	R. A. Gibbs.
Sulphur Springs	Hopkins	530	17	62.0	+ 6.6	83	3†	32	18	35	1.53	− 1.70	0.75	0.0	3	14	7	9	.....	W. B. Baxter.
Texline	Dallam	4,694	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agt. Ft. W. & D. C. Ry
Tulia	Swisher	3,501	11	53.9	.....	87	5	25	17	49	4.39	.....	1.90	0.0	5	6	18	6	sw.	Lou Mulhall.
Wichita Falls	Wichita	958	4	.....	.....	.....	.....	.....	.....	.....	3.28	+ 1.12	2.00	0.0	3	.....	.....	.....	.....	J. B. Nicholson.
Kansas.																				
Anthony	Harper	1,329	12	51.7	.....	87	3	24	16	39	6.17	+ 5.19	2.75	0.0	7	11	10	9	s.	R. H. Beebe.
Ashland	Clark	1,951	2	49.4	+ 6.1	81	26	23	16	45	11.69	+10.88	3.90	T.	12	18	5	7	s.	C. W. Carson.
Burlington	Coffey	1,010	16	50.2[b]	+ 5.9	85	4	21[c]	18	44[c]	4.18	+ 2.87	1.63	0.0	6	11	4	15	s.	A. W. Maxwell.
Chanute	Neosho	940	5	54.4	.....	84	4	25	16	42	5.79	.....	1.33	0.0	9	9	16	5	s.	Chase W. Brown.
Cimarron	Gray	2,700	3	46.4[c]	.....	84[c]	3	18[c]	16	47[c]	5.46	.....	2.01	1.0	5	13	4	8	ne.	Fred Mallonee.
Coldwater	Comanche	2,090	11	49.6	.....	85	3	21	16	44	7.74	+ 7.01	2.80	0.0	7	18	3	9	s.	J. L. Stanley.
Columbus	Cherokee	898	19	54.6	+ 9.1	81	4	23	17†	38	7.69	+ 5.36	2.28	0.0	11	8	16	6	sw.	O. E. Skinner.
Coolidge	Hamilton	3,346	13	44.2	+ 4.1	85	6	10	16	57	1.16	+ 0.62	0.96	1.5	5	20	3	7	se.	W. R. Padley.
Cottonwood Falls	Chase	1,234	5	50.1	.....	85	3†	19	18	47	7.45	.....	4.00	0.0	13	13	3	14	sw.	E. B Greene.
Council Grove	Morris	1,191	.....	52.2	.....	81	6	20	17	39	7.18	.....	5.00	0.0	4	16	2	2	s.	Geo. W. Cleek, jr.
Cunningham	Kingman	1,680	21	50.2[a]	+ 6.3	94[a]	3	21[a]	16	52[a]	6.75	+ 5.92	0.85	0.0	7	13	6	11	n.	W. H. Morton.
Dodge City	Ford	2,513	35	47.0	+ 6.5	82	3	19	16	43	5.81	+ 5.26	2.14	2.2	8	13	7	10	s.	U. S. Weather Bureau
El Dorado	Butler	1,291	7	51.6	.....	85	4	22	17	45	7.47	.....	3.90	0.0	11	14	6	10	s.	W. Y. Miller.
Ellinwood	Barton	1,788	15	48.9	+ 6.5	84	4	19	16	45	6.84	+ 5.99	2.20	1.0	10	8	13	9	nw.	Martin Musil.
Emporia	Lyon	1,138	25	50.6	+ 6.9	82	3	18	22	37	5.62	+ 4.33	3.10	0.0	8	8	12	10	s.	W. H. Boyles.
Eureka	Greenwood	1,093	11	51.6	.....	85	3	21	18	42	4.79	+ 2.99	2.50	0.0	8	15	6	9	s.	T. C. Peffer.
Fall River	do	925	13	52.8	.....	85	3†	20	18	47	4.73	+ 2.94	1.40	0.0	7	11	10	9	s.	J. McDaniel.
Fargo	Seward	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.27	.....	1.77	2.2	6	18	5	7	se.	Frank Swink.
Fredonia	Wilson	864	6	53.6	.....	84	3	21	17	38	4.82	.....	1.20	0.0	10	10	6	14	s.	B. W. Holmes.
Garden City	Finney	2,836	15	45.8	+ 2.8	83	3	17	15†	46	3.77	+ 3.13	0.92	4.0	7	20	3	7	s.	B. F. Stocks.
Great Bend	Barton	1,850	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Pritchard.
Greensburg	Kiowa	2,235	2	48.2	.....	85	3	19	16	44	7.80	.....	2.20	0.5	8	17	3	10	s.	C. C. Raymond.
Grenola	Elk	1,116	22	50.8	+ 5.8	83	4	19	18	41	5.06	+ 3.31	3.02	0.0	10	9	6	15	s.	R. M. Lawyer.
Howard	do	1,112	2	.....	.....	.....	.....	.....	.....	.....	5.07	.....	2.00	0.0	7	13	2	15	sw.	J. W. Eby.
Hugoton	Stevens	.....	5	48.2	.....	79	4†	18	17	46	3.16	.....	0.95	T.	7	16	9	5	s.	J. A. Firmin.
Hutchinson	Reno	1,535	19	49.4	+ 4.5	84	3†	21	16	45	6.52	+ 5.80	2.20	0.0	10	16	4	10	sw.	E. S. Webster.
Independence	Montgomery	816	37	54.8	+ 8.8	83	3†	24	17	41†	4.42	+ 2.48	1.35	0.0	11	8	4	18	s.	J. M. Altaffer.
Iola	Allen	984	3	51.9	+ 8.9	82	4	22	18	38	3.68	+ 2.30	1.04	0.0	9	11	4	15	s.	U. S. Weather Bureau
Jetmore	Hodgeman	2,268	8	47.9	.....	83	4	16	16	44	6.49	.....	1.47	2.0	7	10	11	9	sw.	James Aikin.
Kingman	Kingman	1,504	1	50.4	.....	96	4	22	16	55	7.11	.....	2.99	0.0	8	14	4	12	sw.	B. B. Anawalt.
La Crosse	Rush	2,061	7	50.4[b]	.....	83[b]	3†	25[b]	22	45[b]	4.63	.....	1.31	3.0	7	12	3	9	se.	Rodney Torrey.
Lakin	Kearney	2,993	19	44.1	+ 1.8	78	3	11	16	47	3.01	+ 2.49	1.62	1.0	5	16	8	6	sw.	C. H. Longstreth.
Larned	Pawnee	2,090	5	48.3	.....	84	4	16	16	44	5.75	+ 4.79	2.00	2.0	8	13	7	10	se.	H. H. Wolcott.
Lebo	Coffey	1,138	23	50.1	+ 7.2	84	4	21	17†	40	6.51	+ 4.88	3.84	0.0	10	10	5	15	s.	J. J. Bowman.
Le Roy	do	990	.....	.....	.....	.....	.....	.....	.....	.....	2.93	.....	1.12	.....	7	9	3	18	s.	F. W. Schmitt.
Liberal	Seward	2,843	2	49.4	.....	85	3	20	16	45	4.49	.....	2.20	3.0	6	17	4	9	se.	R. T. Nichols.
Macksville	Stafford	2,032	16	49.4	+ 5.8	85	3	19	16	44	5.08	+ 4.19	1.90	0.5	6	9	9	12	se.	Mrs. Nelia Poling.
McPherson	McPherson	1,495	19	49.6	+ 6.4	85	4	20	16	43	6.35	+ 5.33	2.17	0.0	8	15	3	12	se.	Ed. F. Haberlein.
Madison	Greenwood	1,074	8	49.4[b]	.....	88[b]	3	17[b]	18	49[b]	6.12	.....	3.91	0.0	7	8	13	7	se.	C. A. David.
Marion	Marion	1,310	15	49.7	+ 5.7	86	4	20	16†	47	7.23	+ 6.17	3.25	0.0	10	9	8	13	.....	D. D. McIntosh.
Medicine Lodge	Barber	1,475	16	49.8	+ 4.8	88	3	21	16	52	7.06	+ 6.10	2.53	0.0	7	15	5	10	s.	S. P. Garrison.
Medora	Reno	1,480	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. L. Rickenbrode.
Mt. Hope	Sedgwick	1,410	12	.....	.....	.....	.....	.....	.....	.....	7.16	+ 6.56	3.00	0.0	8	15	3	12	s.	H. N. Renfrew.
Neosho Rapids	Lyon	1,092	4	.....	.....	.....	.....	.....	.....	.....	6.02	.....	2.90	.....	7	12	0	18	s.	J. E. McLeod.
Ness City	Ness	2,260	12	.....	.....	.....	.....	.....	.....	.....	4.43	+ 3.71	1.03	.....	6	.....	.....	.....	.....	J. K. Barnd.
Newton	Harvey	1,454	12	51.4	+ 6.1	87	3	21	16	45	7.32	+ 6.29	3.05	.....	8	13	7	10	sw.	C. F. Walden.
Norwich	Kingman	1,496	13	51.6	+ 5.4	86	3	23	16	38	8.49	+ 7.32	4.10	0.0	9	12	8	10	se.	N. I. Farris.
Oswego	Labette	899	18	56.0	+ 8.7	84	4	23	17†	41	4.62	+ 2.55	0.97	0.0	9	9	8	13	sw.	Jas. M. Currigan.
Pratt	Pratt	1,950	14	48.4[c]	+ 3.7	80[c]	4	20[c]	16	38[c]	6.42	+ 5.54	2.40	T.	5	15	8	7	.....	E. H. Ellsworth.
Rome	Sumner	1,218	12	52.2	+ 7.2	82	3†	25	16†	44	7.11	+ 5.89	4.31	0.0	10	3	13	14	s.	D. M. Adams.
Sedan	Chautauqua	834	24	54.4	+ 8.4	84	4	21	17	43	3.98	+ 2.39	1.00	0.0	10	13	8	9	s.	A. Y. Buckles.
Toronto	Woodson	1,040	12	52.2	+ 6.8	86	5	19	18	47	4.10	+ 2.66	2.35	0.0	5	17	0	13	sw.	M. A. Webb.
Ulysses	Grant	3,027	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. W. Marshall.
Walnut	Crawford	940	7	.....	.....	83[f]	4	22[f]	17†	39[f]	4.34	.....	0.95	0.0	8	10	8	6	se.	R. C. Harlan.
Wichita	Sedgwick	1,377	22	50.8	+ 7.0	83	3	22	16	36	6.69	+ 5.51	4.74	0.0	9	7	10	13	s.	U. S. Weather Bureau.
Winfield	Cowley	1,124	12	51.8	+ 5.7	80	4	22	18	40	6.55	+ 4.84	4.00	0.0	7	12	2	16	s.	M. B. Light.
Yates Center	Woodson	1,068	16	52.9	+ 7.5	93	3	20	18	45	3.96	+ 2.23	2.04	0.0	6	8	8	14	s.	J. W. Tipton.
Oklahoma.																				
Ada	Pontotoc	1,001	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. J. P. McKinley.
Apache	Caddo	.....	1	57.2	.....	87	3	29	17	46	5.56	.....	2.00	0.0	7	14	7	9	sw.	G. D. Teeter.
Arapaho	Custer	1,575	16	55.0	+ 7.0	87	3	27	17	40	8.76	+ 7.30	2.40	0.0	8	17	5	8	s.	Geo E. Marsh.
Ardmore	Carter	872	8	59.5	.....	85	4	28	18	44	5.96	.....	2.95	0.0	5	12	4	14	s.	H. T. Nisbett.
Bartlesville	Washington	.....	3	57.5	.....	86	4	25	18	44	5.01	.....	1.26	0.0	5	12	10	8	se.	Dr. A. P. Owens.
Beaver	Beaver	2,500	13	50.6	+ 6.6	87	1†	21	17	45	6.11	+ 5.64	2.20	T.	6	21	1	8	sw.	W. C. Frazer.
Blackburn	Pawnee	800	5	56.8	.....	89	3†	24	18	48	4.97	.....	1.38	0.0	9	13	4	13	sw.	J. Landis.
Buffalo	Harper	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. M. Brink.
Cache	Comanche	1,350	4	54.3	.....	84	5	23	18	43	7.85	.....	4.00	0.0	4	19	0	11	s.	U. S. Forest Service.
Calvin	Hughes	713	5	.....	.....	.....	.....	.....	.....	.....	3.17	.....	0.94	0.0	8	11	0	19	s.	Thomas Purcell.
Chandler	Lincoln	865	6	57.8[k]	.....	86[k]	3†	18[k]	16	56[k]	3.00	.....	1.20	0.0	5	7	2	10	s.	Chas. L. Tuttle.
Chattanooga	Comanche	1,150	4	56.8	.....	90	9	24	17	58	5.58	.....	3.00	0.0	6	17	2	11	s.	Squire Humble.
Chickasha	Grady	1,091	9	58.8	.....	88	2	28	18	40	4.56	.....	2.26	0.0	5	22	3	5	s.	J. C. Good.
Cloud Chief	Washita	1,400	9	55.0	.....	86	3†	25	19	45	7.32	.....	3.17	0.0	7	14	7	9	s.	J. P. Stutsman.
Dacoma	Woods	1,337	12	52.9	+ 2.8	85	3	25	16	42	7.51	+ 6.27	3.60	0.0	7	13	5	12	sw.	N. A. Andress.
Durant	Bryan	643	9	58.8	.....	86	3	28	18	42	2.65	.....	0.65	0.0	6	9	9	12	s.	Nelson Houk.
Eldorado	Jackson	1,456	3	60.2	.....	87	5†	39	23†	37	5.09	.....	2.00	0.0	5	10	14	6	s.	R. D. Barnes.
Enid	Garfield	1,269	10	52.4	.....	86	4	21	27	40	5.80	.....	2.25	0.0	8	18	5	7	s.	Urt B. Worcester.
Erick	Beckham	2,058	6	.....	.....	85[c]	3†	.....	.....	.....	7.79	.....	3.80	0.0	6	9	11	5	s.	Dr. J. D. Warford.
Fairland	Ottawa	839	10	59.0	+ 8.9	86	4	25	17†	41	7.63	+ 4.67	3.12	0.0	9	13	9	8	s.	C. W. Prier.
Fort Gibson	Muskogee	556	5	.....	.....	.....	.....	.....	.....	.....	5.06	.....	1.66	0.0	8	12	6	12	e.	John T. Welsh.
Frederick	Gillman	1,293	6	56.6	.....	86	3	27	17	44	6.66	.....	1.95	0.0	7	14	8	8	se.	B. B. Bradley.
Gage	Ellis	2,136	7	49.2	.....	88	3	25	16	51	11.43	.....	4.05	0.0	7	20	6	4	s.	C. H. Holmes.
Guthrie	Logan	1,000	7	56.2	+ 5.9	87	5†	27	17	40	6.00	+ 3.90	2.35	0.0	6	11	5	14	n.	G. W. Derrick.
Guymon	Texas	.....	1	.....	.....	.....	.....	.....	.....	.....	4.14	.....	2.11	0.0	4	19	1	10	n.	A. L. Mordt.
Harrington	Roger Mills	.....	8	50.7	.....	86	3	24	16	40	8.72	.....	4.33	0.0	6	15	4	11	s.	J. G. Harrington.
Hartshorne	Pittsburg	700	11	62.0[c]	+ 7.2	86[c]	4	25[c]	18	43[c]	2.35	− 1.58	1.80	0.0	5	7	13	10	s.	Edward Glendenning.
Healdton	Carter	900	16	58.3	+ 4.6	88	4	21	18	52	5.52	+ 3.18	2.55	0.0	7	15	12	3	s.	A. C. Heald.

TABLE 1.—*Climatological data for November, 1909. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Oklahoma—Cont'd.																			
Hennessey	Kingfisher	1,166	15	54.6[a]	+ 4.6	88[a]	3	27[a]	17	40[a]	4.86	+ 3.41	1.80	0.0	10	12	12	6	s.	W. W. Parks.
Hobart	Kiowa	1,396	6	54.2	.....	87	3	29	16	42	7.18	.....	2.29	0.0	7	11	9	10	s.	Roy Benedict.
Holdenville	Hughes	900	9	58.2	.....	85	3†	27	18	42	3.53	.....	1.50	0.0	5	17	9	4	s.	Miss M. Rutherford.
Hooker	Texas	2,999	4	47.3	.....	79	6	20	16	45	3.41	.....	1.64	0.0	6	13	2	15	s.	J. N. Kelly.
Hurley	Cimarron	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. W. Myers.
Idabel	McCurtain	474	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. W. B. McCaskill.
Jefferson	Grant	1,062	16	52.5	+ 5.9	81	4	25	17	40	7.71	+ 6.86	3.38	0.0	8	14	6	10	s.	J. M. Maddy.
Kenton	Cimarron	4,000	10	46.8	+ 2.2	78	6	19	17	42	1.52	+ 0.90	0.62	7.0	5	18	8	4	s.	L. A. Wikoff.
Kingfisher	Kingfisher	1,046	12	56.4	+ 6.4	88	3†	25	17	47	6.12	+ 4.45	3.18	0.0	7	14	8	8	s.	J. C. Cross.
McAlester	Pittsburg	698	17	62.3	.....	87	3†	27	18	40	4.80	+ 2.30	1.46	0.0	7	21	3	6	s.	Wm. Noble.
McComb	Pottawatomie	1,200	15	60.0	+ 9.3	85	2	26	17†	34	6.10	+ 4.58	2.45	0.0	4	8	16	6	s.	Jas. E. McNair.
Mangum	Greer	1,585	17	52.2	+ 1.5	81	5	29	16†	41	6.03	+ 4.59	2.23	0.0	6	16	0	14	s.	Wade N. Johnson.
Marlow	Stephens	1,292	9	57.7	+ 5.8	86	3	30	23	42	4.20	+ 1.38	1.87	0.0	5	13	2	15	sw.	W. B. Anthony.
Meeker	Lincoln	1,030	16	57.4	+ 6.7	85	5†	24	18	41	5.02	+ 3.11	1.90	0.0	7	17	1	12	s.	Dr. John H. Baugh.
Muskogee	Muscogee	614	11	60.0	+ 8.8	87	4	27	17†	39	5.24	+ 2.81	1.48	0.0	6	13	2	15	s.	Prof. E. N. Collette.
Mutual	Woodward	.....	3	52.0	.....	88	3	25	16	48	9.35	.....	3.75	0.0	6	17	4	9	s.	Thos. Martin.
Neola	Caddo	1,500	4	55.6	.....	85	4†	28	17	39	6.36	.....	4.53	0.0	3	14	8	8	s.	R. M. Schooling.
Newkirk	Kay	1,149	13	54.2	+ 6.3	84	3	25	16†	39	5.38	+ 4.07	3.00	0.0	8	9	15	6	s.	P. H. Allright & Co.
Norman	Cleveland	1,171	16	56.8[b]	+ 6.6	85[b]	2†	20[b]	22	44[b]	3.76	+ 1.34	1.47	0.0	7	8	10	4	s.	Walter H. Meier.
Okeene	Blaine	1,194	6	54.0[b]	.....	85[b]	4	27[b]	16†	36	6.22	.....	2.73	0.0	8	17	4	9	s.	Dr. L. H. Murdock.
Oklahoma	Oklahoma	1,247	30	56.1	+ 8.2	84	6	29	16	32	5.29	+ 3.04	3.22	0.0	9	11	7	12	s.	U. S. Weather Bureau.
Okmulgee	Okmulgee	752	7	59.0	.....	88	3	22	18	52	2.63	.....	1.25	0.0	5	14	8	8	s.	J. L. Maynard.
Pauls Valley	Garvin	880	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. M. Foss.
Pawhuska	Osage	918	11	57.0	+10.5	87	4	24	18	47	3.62	+ 1.61	1.00	0.0	9	10	12	8	n.	R. C. Block.
Perry	Noble	1,060	12	56.2	+ 6.9	86	4†	25	17	43	6.28	+ 4.67	2.00	0.0	10	13	3	14	s.	J. A. Douglas.
Ravia	Johnson	796	8	60.2	.....	86	3	26	19	44	5.02	.....	1.97	0.0	8	15	2	13	s.	R. G. Guptill.
Sac and Fox Agency	Canadian	900	17	57.4[a]	+ 8.6	85[a]	3	26[a]	18	41	4.32	+ 2.26	1.62	0.0	5	20	0	9	s.	D. J. Henderson.
Shawnee	Pottawatomie	1,041	9	56.7[b]	.....	83[b]	2†	27[b]	17†	38[b]	3.88[a]	.....	1.90[a]	0.0	7	14	3	11	s.	Neal R. Clark.
Snyder	Kiowa	1,356	3	56.6	.....	86	4	28	17	43	6.99	.....	2.92	0.0	7	16	8	6	sw.	Dr. W. G. Woodard.
Stillwater	Payne	880	17	54.6	+ 5.9	86	4	26	18	41	6.07	+ 4.32	2.50	0.0	8	14	8	8	s.	John M. Speidel.
Supply	Woodward	.....	2	47.8	.....	76	3†	24	17	44	11.18	.....	3.80	T.	8	19	3	6	s.	A. H. Trimbo.
Temple	Comanche	925	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. F. Fitch.
Tulsa (1)	Tulsa	700	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	William Hall.
Tulsa (2)	....do	702	5	56.2	.....	89	2	27	17	41	4.36	+ 2.45	1.72	0.0	5	10	9	11	s.	Miss Pearl E. Towers.
Vinita	Craig	698	6	57.9[a]	.....	85[a]	3†	23[a]	17†	43[a]	7.90	.....	4.00	0.0	8	13	4	12	s.	Lyman Bros.
Wagoner	Wagoner	588	13	59.0[a]	+ 9.2	86[a]	3	24[a]	18	41	3.37	+ 1.75	0.93	0.0	7	11	4	15	s.	S. L. Hatfield.
Waukomis	Garfield	1,258	13	54.1	+ 4.3	85	5	27	15†	39	5.35	+ 4.01	3.23	0.0	9	15	2	13	sw.	R. C. Shades.
Weatherford	Custer	1,639	8	54.2	.....	87	3	27	16	39	7.44	.....	2.20	0.0	8	13	7	10	s.	M. D. Reed.
Webbers Falls	Muskogee	479	11	58.6	+ 9.6	87	4†	24	18	48	2.37	− 0.89	0.95	0.0	6	8	17	5	s.	B. D. Boulineau.
Whiteagle	Kay	945	4	55.4	.....	87	4	27	16†	41	4.72	.....	2.30	0.0	10	13	6	11	s.	J. M. Dankwardt.
Woodward	Woodward	.....	1	51.6	.....	84	4	22	17	44	9.54	.....	3.42	0.0	10	19	5	6	s.	R. A. Boyle.
Missouri.																				
Belle	Maries	.....	17	56.8[d]	+11.3	81[d]	7	16[d]	18	35[d]	4.70[d]	+ 2.25	1.90[d]	0.0[d]	5[d]	11[d]	9[d]	6[d]	s.	A. J. Wofford.
Birchtree	Shannon	1,200	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	V. H. Kirkendall.
Cape Girardeau	Cape Girardeau	346	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	D. L. Albert.
Caruthersville	Pemiscot	.....	18	58.9	+10.5	87	3	28	18	47	4.08	− 0.64	1.15	0.0	8	23	0	7	se.	H. E. Averill.
Dean	McDonald	.....	10	57.8[b]	+ 8.6	86[b]	4	19[b]	18	47[b]	6.47[b]	+ 3.49	2.82[b]	0.0[b]	9[b]	19[b]	0[b]	9[b]	.....	H.E. Dean.
Doniphan	Ripley	440	5	55.6	.....	82	3	22	18	45	4.39	.....	1.03	0.0	7	14	2	14	s.	W. W. Martin.
Farmington	St. Francois	889	2	57.1[b]	.....	82[b]	3	28[f]	23	47[b]	3.38[f]	.....	0.88[f]	0.0	7[f]	16[f]	1[f]	7[f]	.....	Miss Helen Montgomery.
Gano	Dent	.....	5	56.8	.....	83	3†	25	17	37	6.03	.....	2.30	0.0	7	13	10	7	s.	A. C. Leech.
Goodland	Iron	900	4	54.2	.....	83	3	18	18	51	3.91	.....	1.43	0.0	5	16	7	7	s.	F. M. Adams.
Greenville	Wayne	.....	14	57.8	+11.4	86	3†	22	18	51	4.67	+ 1.42	1.25	0.0	5	14	14	2	s.	A. G. Templeton.
Ironton	Iron	925	31	54.7	+11.3	82	3	20	18	50	4.64	+ 0.69	0.90	0.0	9	4	11	15	s.	W. H. Delano.
Jackson	Cape Girardeau	458	18	57.7	+12.2	85	3	23	18	46	3.65	.....	1.63	0.0	5	11	10	9	s.	L. M. Bean.
Joplin	Jasper	979	30	57.9	.....	82	4	25	17†	34	5.72	+ 3.28	2.20	0.0	7	18	4	8	sw.	Miss Elizabeth Russum.
Koshkonong	Oregon	911	9	57.0	.....	84	3	22	18	34	3.90	+ 0.68	0.91	0.0	10	12	9	9	s.	J. W Hitt.
Lamar	Barton	964	28	54.3	+ 8.8	84	5	22	18	41	6.00	+ 3.93	1.90	0.0	8	9	6	15	se.	E. H. Adams.
Marble Hill	Bollinger	420	16	55.4	+10.1	84	3	20	18	49	4.65	+ 1.26	1.05	0.0	5	10	12	8	nw.	A. F. Hendricks.
Marshfield	Webster	1,492	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	O. P. Keeler.
Mt. Vernon	Lawrence	1,480	33	56.4	+ 9.7	84	4	20	18	40	8.49	+ 5.73	5.50	0.0	9	12	15	3	se.	Dr. O. H. Brown.
Neosho	Newton	1,023	25	57.6	+11.2	85	4	20	18	44	12.52	+ 9.73	6.18	0.0	10	12	8	10	s.	H. D. Dean.
Oakfield	Franklin	793	17	55.2	+ 9.8	82	5†	19	18	35	4.90	+ 2.18	2.42	0.0	9	6	13	11	s.	E. E. Steiner.
Olden	Howell	1,246	19	56.0	+ 9.2	82	4	18	18	33	2.65	− 0.60	0.73	0.0	6	14	3	13	se.	J. D. Evans.
Perryville	Perry	582	1	55.5	.....	84	3	16	18	46	1.77	.....	1.00	0.0	6	16	0	14	s.	S. L. Cayton.
Poplar Bluff	Butler	343	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. C. Thomes.
Sikeston	Scott	328	14	57.6	+ 9.6	83	5	24	18	42	5.00	+ 1.16	1.40	0.0	7	17	6	7	sw.	A. A. Harrison.
Springfield	Greene	1,350	22	55.4	+11.0	79	4	23	17	31	5.67	+ 3.03	2.83	0.0	10	8	12	10	se.	U. S. Weather Bureau.
Steelville	Crawford	1,746	12	54.4[e]	.....	84[e]	3	13[e]	18	50[e]	3.00[e]	+ 0.09	1.00[e]	0.0[e]	5[e]	15[e]	3[e]	7[e]	w.	Edwin Pumphrey.
Willow Springs	Howell	1,300	16	55.6	+10.1	82	7	21	18	43	1.20	− 2.34	0.70	0.0	4	28	0	2	se.	John Lovewell.
Kentucky.																				
Blandville	Ballard	445	29	57.1	+13.0	84	4	25	18	37	3.74	− 0.62	0.97	0.0	8	11	9	10	se.	E. W. Horr.
Lynnville	Graves	.....	8	56.2	.....	81	7†	25	18	42	3.32	.....	2.04	0.0	4	16	4	10	s.	Wm. Scherffius.
Tennessee.																				
Arlington	Shelby	.....	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. T. B. Etheridge.
Bolivar	Hardeman	450	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss M. A. Smith.
Brownsville	Haywood	361	27	58.4	+10.1	80	29	27	18	43	5.38	+ 0.81	1.18	0.0	7	14	8	8	s.	Miss Hattie N. Moss.
Covington	Tipton	311	27	57.7	+ 8.6	76	3	29	18	45	7.09	+ 2.62	2.25	0.0	9	20	0	10	s.	J. S. Ruffin.
Dyersburg	Dyer	310	27	58.4	+10.2	83	6	26	19	40	5.65	+ 0.66	2.00	0.0	7	20	0	10	se.	M. A. Sinclair.
Jackson	Madison	450	16	60.2	+10.6	88	4	28	18†	47	1.92	− 2.37	0.71	0.0	7	14	9	7	s.	T. H. Hartmus.
Kenton	Obion	.....	8	58.8	+ 9.5	84	4	26	18	44	5.91	+ 0.89	3.19	0.0	8	19	1	10	s.	G. S. Martin.
Memphis	Shelby	409	39	60.6	+ 9.2	82	4	32	18	29	4.87	+ 0.28	2.68	0.0	6	17	8	5	s.	U. S. Weather Bureau.
Milan	Gibson	440	27	58.0	+10.4	81	5	27	18	38	4.68	− 0.63	1.13	0.0	9	10	10	10	s.	O. F. Cantwell.
Trenton	....do	345	28	57.4	+ 9.8	84	4	25	18	47	4.99	+ 0.15	2.12	0.0	8	22	1	7	sw.	Prof. F. L. Dennison.
Union City	Obion	360	14	58.4	+ 8.8	84	4	26	18	44	4.71	− 0.73	2.00	0.0	8	13	12	5	se.	Earl A. Kinzey.
Arkansas.																				
Alicia	Lawrence	.....	5	58.4	.....	84	3	31	17	47	5.30	.....	2.10	0.0	5	17	11	2	s.	McCullough & Guelck.
Amity	Clark	250	17	59.8	+ 8.3	85	4	25	18	43	3.19	− 0.89	1.10	0.0	5	14	7	9	sw.	Prof. S. M. Samson.
Arkadelphia (near)	....do	250	2	61.1	.....	81	3†	29	18	36	3.90	.....	1.97	0.0	7	12	9	9	sw.	J. A. Ross.
Arkansas City	Desha	145	26	.....	.....	.....	.....	.....	.....	.....	2.46	− 1.30	0.84	0.0	5	.....	.....	.....	.....	W. C. Blundell.
Batesville (1)	Independence	271	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Q. Wolf.
Batesville (2)	....do	271	5	.....	.....	.....	.....	.....	.....	.....	3.55	.....	0.68	0.0	10	.....	.....	.....	.....	Miss Lelia I. Feter.
Bee Branch	Van Buren	.....	17	58.2	+ 7.1	85	4	25	18	41	3.95	+ 0.63	1.20	0.0	7	14	3	13	.....	J. E. Scanlan.
Benton	Saline	283	2	60.9[b]	.....	86[d]	4	29	18	42[d]	2.77	.....	1.35	0.0	4	11	14	5	s.	J. E. Evans.
Bentonville	Benton	1,303	4	57.8	+11.1	83	4	24	18	37	2.43	− 0.56	0.65	0.0	10	9	7	14	s.	U. S. Weather Bureau.
Bergman	Boone	1,324	13	54.9[b]	+ 6.8	82	4	16[e]	18	38[e]	4.05	+ 1.31	1.78	0.0	7	16	6	8	sw.	John T. Maxey.
Black Rock	Lawrence	.....	5	.....	.....	.....	.....	.....	.....	.....	5.63	.....	1.52	0.0	9	.....	.....	.....	.....	S. J. Howe.
Brinkley	Monroe	220	23	59.2	+ 8.4	87	4	28	18†	46	3.29	− 1.61	0.92	0.0	7	13	9	8	s.	H. L. D. Whitson.

TABLE 1.—*Climatological data for November, 1909. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Arkansas—Cont'd.																				
Calico Rock	Izard	361	5	.....	.....	.....	.....	.....	.....	.....	5.12	.....	2.24	0.0	7	.....	.....	.....	.....	W. H. Stoner.
Camden	Ouachita	158	24	61.4	+ 9.1	84	4	27	19	41	4.14	− 0.11	1.72	0.0	8	13	6	11	sw.	R. H. Quarterman.
Centerpoint	Howard	.....	9	62.0	.....	84	2	28	18	43	2.37	.....	1.06	0.0	5	10	10	10	se.	J. M. Huddleston.
Clarendon	Monroe	171	5	.....	.....	.....	.....	.....	.....	.....	2.24	.....	0.67	0.0	6	.....	.....	.....	.....	Mrs. B. E. Bishop.
Conway	Faulkner	309	26	58.4	+ 8.5	83	3	27	18	43	3.96	− 0.31	1.39	0.0	8	10	14	6	se.	G. H. Burr.
Corning	Clay	293	17	58.8	+12.1	85	3	25	18	46	5.43	+ 2.20	1.82	0.0	7	12	8	10	s.	Jacob Brobst.
Dardanelle	Yell	330	23	58.4	.....	88	6	27	19	42	5.58	+ 2.06	1.90	0.0	7	12	4	14	s.	A. Bernard.
Dodd City	Marion	1,175	28	56.5	+ 8.9	83	3	20	17	41	4.49	+ 1.20	2.50	0.0	5	12	11	7	s.	Neal Dodd.
Dutton	Madison	.....	8	56.2[c]	.....	82[c]	4	19[c]	18	43[c]	2.16	.....	1.20	0.0	4	.....	.....	.....	s.	T. S. Williamson.
Earl	Crittenden	.....	3	59.8	.....	87	4	27	18	43	5.94	.....	1.82	0.0	6	19	6	5	.....	W. J. Moss.
Eldorado	Union	265	5	61.6	.....	84	3†	29	18	41	2.87	.....	1.54	0.0	7	10	7	13	e.	Fred A. Babb.
England	Lonoke	.....	3	59.8[a]	.....	83[a]	3	29[a]	17	37[a]	5.23	.....	1.58	0.0	8	.....	.....	.....	s.	J. C. Chenault.
Eureka Springs	Carroll	.....	8	58.0	.....	81	4	21	18	38	5.18	.....	3.12	0.0	5	5	18	7	sw.	Jas. T. Pomeroy.
Fayetteville	Washington	1,451	20	61.4	+13.0	90	4	24	17†	47	2.04	− 1.15	1.15	0.0	5	15	8	7	sw.	University of Arkansas
Fort Smith	Sebastian	481	27	59.7	+ 9.8	85	4	29	18	36	3.15	− 0.13	1.43	0.0	8	10	11	9	e.	U. S. Weather Bureau.
Fulton	Hempstead	264	5	.....	.....	.....	.....	.....	.....	.....	3.64	.....	2.20	0.0	4	.....	.....	.....	.....	B. C. Logan.
Hardy	Sharp	643	11	58.0	+ 8.3	85	3	24	18	42	5.41	+ 2.47	1.58	0.0	8	9	11	10	sw.	C. A. Caywood.
Helena (1)	Phillipi	182	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Robert Kyle.
Helena (2)	...do	182	8	60.1	+ 8.1	88	4	30	18†	43	5.06	+ 0.33	1.74	0.0	7	19	1	10	s.	B. F. Modisett.
Hot Springs	Garland	600	3	57.6	.....	83	4	24	18	44	3.14	.....	1.25	0.0	6	20	7	3	e.	Hot Springs Water Co.
Huttig	Union	85	2	61.6[c]	.....	84[c]	5	28[c]	19	41[c]	3.21	.....	1.48	0.0	6	.....	.....	.....	.....	C. A. Berry.
Jonesboro	Craighead	345	14	57.9	.....	88	4	25	18	45	4.20	+ 0.71	1.20	0.0	8	20	7	3	s.	Benedictine Sisters.
Junction	Union	.....	16	.....	.....	84	5	.....	.....	.....	1.62	− 2.42	0.64	0.0	4	19	3	8	sw.	J. A. Lowderback.
Lacrosse	Izard	.....	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. E. Kennard.
Lake Farm	Jefferson	195	2	58.9[b]	.....	85	4†	25[c]	18	46[c]	5.04	.....	1.52	0.0	7	17	7	6	s.	R. H. Gillespie.
Lewisville	Lafayette	262	6	62.5	.....	84	2†	29	18	42	3.00	.....	1.33	0.0	7	13	6	11	.....	F. W. Youmans.
Little Rock	Pulaski	357	30	60.3	+ 8.8	84	4	32	18	33	3.00	− 1.59	0.98	0.0	6	12	8	10	s.	U. S. Weather Bureau.
Lutherville	Johnson	775	12	57.1	+ 6.6	81	4	24	18	39	3.83	− 0.06	1.20	0.0	5	14	9	7	sw.	Herman Hentschel.
McNeil	Columbia	321	2	61.4	.....	89	1	29	18	40	3.14	.....	1.26	0.0	6	10	11	9	s.	L. A. Smith.
Malvern	Hot Spring	277	22	58.0	+ 6.1	85	4	28	18†	42	3.42	− 1.37	1.00	0.0	6	10	5	15	ne.	Miss L. C. Smith.
Mammoth Spring	Fulton	.....	5	58.0[d]	.....	84[d]	3	29[e]	24	48[e]	5.89	.....	2.26	0.0	.6	.....	.....	.....	.....	F. Wallick.
Marked Tree	Poinsett	.....	5	.....	.....	.....	.....	.....	.....	.....	3.73	.....	1.55	0.0	8	.....	.....	.....	.....	L. Smith.
Mena	Polk	1,100	23	59.7	+ 8.1	80	4	27	18	36	3.29	− 0.31	1.66	0.0	6	14	10	6	s.	D. H. Hopkins.
Mossville	Newton	.....	16	55.1	+ 7.6	80	4†	24	17	34	4.78	+ 1.12	2.21	0.0	5	13	5	12	s.	Theo. Ober.
Mount Nebo	Yell	1,750	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. G. Church.
Newport (1)	Jackson	231	25	58.2	+ 7.9	83	3	30	18	38	7.98	+ 3.11	1.83	0.0	10	12	2	16	nw.	Mrs. A. B. Hillhouse.
Newport (2)	...do	231	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. V. Hughes.
Ozark	Franklin	377	18	60.7	+ 8.8	86	4	27	17	40	2.25	− 0.87	1.02	0.0	6	14	10	6	e.	R. M. Adams.
Pine Bluff	Jefferson	215	21	60.8	+ 8.0	86	3†	30	24	52	3.88	− 0.21	0.96	0.0	7	17	7	6	sw.	J. H. Hudson.
Pocahontas	Randolph	.....	17	59.6	+11.5	88	3†	24	18	48	4.91	+ 1.27	1.42	0.0	6	14	6	10	.....	Benedictine Sisters.
Pond	Benton	1,250	12	58.0	+ 9.8	84	4	19	18	44	2.92	+ 0.12	0.99	0.0	8	5	14	11	sw.	A. F. Stevens.
Portland	Ashley	122	....	61.0	.....	86	4	27	19†	45	2.65	.....	1.06	0.0	6	16	6	8	s.	T. A. Corson.
Prescott	Nevada	327	21	61.5	+ 8.6	88	12	28	18	42	2.38	−0.70	0.63	0.0	7	16	5	9	sw.	A. M. Ellsworth.
Princeton	Dallas	287	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Capt. D. R. Fenster.
Rogers	Benton	1,385	18	58.3	+10.3	84	4	21	18	39	3.19	+ 0.27	1.57	0.0	7	13	7	10	s.	Carl A. Stark.
Russellville	Pope	348	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. F. Hodgins.
Spielerville	Logan	1,050	12	60.0	+ 8.1	85	6	27	18	40	2.09	− 0.97	0.64	0.0	6	13	6	11	sw.	New Subiaco Abbey.
Springbank	Miller	182	2	.....	.....	.....	.....	.....	.....	.....	1.38	.....	0.58	0.0	6	.....	.....	.....	.....	G. Field.
Stuttgart	Arkansas	495	22	60.8	+10.0	84	3†	26	18	46	3.44	− 1.11	1.34	0.0	7	16	10	4	s.	H. A. Buerkle.
Texarkana	Miller	332	25	61.0	+ 6.1	84	21	31	18	35	2.70	− 0.50	1.07	0.0	8	13	4	13	n.	W. B. Weeks.
Warren	Bradley	304	14	60.5	+ 7.1	83	3	29	18	40	4.02	+ 0.23	1.78	0.0	6	9	11	10	s.	W. J. Savage.
Whitecliffs	Little River	206	5	.....	.....	.....	.....	.....	.....	.....	3.65	.....	1.75	0.0	5	.....	.....	.....	.....	John E. Payton.
Wiggs	Garland	.....	16	58.9	+ 6.6	84	3†	23	18	47	2.98	− 0.93	1.14	0.0	6	12	13	5	sw.	S. D. Jester.
Wynne	Cross	.....	1	59.2	.....	88	6	26	18	42	4.93	.....	2.41	0.0	8	16	1	13	s.	R. R. Poole.
Mississippi.																				
Anguilla	Sharkey	.....	1	61.3	.....	81	7	27	19	38	2.91	.....	1.90	0.0	3	19	7	4	se.	E. W. Cook.
Austin	Tunica	200	13	60.4	+ 8.1	86	4	27	19	43	4.24	− 1.14	1.00	0.0	6	22	2	6	s.	H. J. Irvine.
Batesville	Panola	230	22	60.6	+ 9.2	88	4	27	18†	45	2.99	− 0.72	1.30	0.0	4	23	3	4	s.	J. M. Cox.
Byhalia	Marshall	390	.....	.....	.....	.....	.....	.....	.....	.....	2.13	.....	0.60	0.0	7	10	16	4	sw.	Tallahatchie Dng. Com.
Canton	Madison	228	19	62.5	+ 6.9	85	1†	24	19	42	0.88	− 2.21	0.40	0.0	5	15	13	2	se.	Dr. G. W. Smith-Vaniz.
Clarksdale	Coahoma	177	2	62.0	.....	87	5†	29	19	43	2.92	.....	0.93	0.0	5	24	3	3	se.	J. F. Durham.
Coffeeville	Yalobusha	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.25	.....	1.05	0.0	3	20	8	2	se.	Tallahatchie Dng. Com.
Corinth	Alcorn	430	21	59.0	+ 8.5	83	1	28	18	39	1.84	− 2.19	0.68	0.0	6	18	1	11	s.	Milton A. Chandler.
Crenshaw	Panola	187	....	.....	.....	.....	.....	.....	.....	.....	3.38	.....	0.86	0.0	8	18	9	3	se.	Tallahatchie Dng. Com.
Denmark	Lafayette	.....	....	.....	.....	.....	.....	.....	.....	.....	2.54	.....	0.95	0.0	5	.....	.....	.....	.....	Do.
Duck Hill	Montgomery	.....	10	60.5[f]	.....	87[f]	4	25[f]	19	49[f]	1.59	.....	0.91	0.0	4	19	0	5	n.	W. H. Eskridge.
Edwards	Hinds	222	22	63.0	+ 6.4	84	1†	25	19	44	1.26	− 1.99	0.45	0.0	6	15	13	2	se.	C. R. Knox.
Enid	Tallahatchie	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.0	.....	24	4	2	.....	Tallahatchie Dng. Com.
Fayette	Jefferson	282	8	63.7	+ 7.6	85	1†	28	19	44	1.96	− 2.41	0.60	0.0	5	21	8	1	sw.	T. L. Darden.
Greenville	Washington	126	22	62.0	+ 7.7	84	3†	27	19	41	1.85	− 1.84	0.75	0.0	6	20	4	6	se.	F. L. Harbison.
Greenwood	Le Flore	140	9	60.2	+ 6.3	86	4	27	19	46	1.06	− 2.43	0.82	0.0	3	19	9	2	se.	J. H. Stephen.
Grenada	Grenada	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.08	.....	0.73	0.0	3	22	6	2	nw.	Tallahatchie Dng. Com.
Hernando	De Soto	391	21	61.4	+ 9.6	86	4	28	18	36	6.48	.....	3.00	0.0	7	19	2	9	s.	Miss Josephine G. Jones.
Hickory Flat	Benton	435	.....	.....	.....	.....	.....	.....	.....	.....	1.82	.....	0.67	0.0	3	18	10	2	e.	Tallahatchie Dng. Com.
Holly Springs	Marshall	600	22	58.9	+ 8.7	82	4	27	18	35	1.84	− 1.95	0.77	0.0	6	16	5	9	se.	L. B. Mosby.
Kosciusko	Attala	430	19	58.8	+ 4.9	84	4	25	19†	45	2.52	− 0.45	1.52	0.0	5	24	3	3	se.	E. L. Lucas.
Lake Cormorant	De Soto	206	....	.....	.....	.....	.....	.....	.....	.....	5.05	.....	1.70	0.0	7	7	18	5	se.	Tallahatchie Dng. Com.
Lula	Coahoma	182	....	.....	.....	.....	.....	.....	.....	.....	6.16	.....	2.39	0.0	5	20	3	7	.....	Do.
Malone	Marshall	.....	....	.....	.....	.....	.....	.....	.....	.....	1.50	.....	1.10	0.0	2	12	18	0	se.	Do.
Marks	Quitman	163	....	.....	.....	.....	.....	.....	.....	.....	2.79	.....	1.05	0.0	5	.....	.....	.....	.....	Do.
Natchez	Adams	206	21	65.6	+ 7.1	86	1†	35	19	40	3.33	− 0.79	1.26	0.0	5	10	10	10	n.	J. C. Weir.
New Albany	Union	398	....	.....	.....	.....	.....	.....	.....	.....	1.58	.....	0.55	0.0	5	16	10	4	s.	Tallahatchie Dng. Com.
Pontotoc	Pontotoc	475	20	60.2	+ 7.7	84	4	28	17†	34	1.81	− 1.63	1.80	0.0	4	18	12	0	se.	Dr. C. W. Bolton.
Port Gibson	Claiborne	116	21	61.0	+ 5.1	84	1†	27	19†	45	2.12	− 1.44	1.05	0.0	5	14	5	11	e.	H. H. Crisler.
Ripley	Tippah	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	S. W. Pegram.
Rosedale	Bolivar	143	1	59.8	.....	85	4	28	19	41	3.88	.....	1.40	0.0	6	15	4	11	sw.	W. A. Shelby.
Senatobia	Tate	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.15	.....	0.71	0.0	7	22	4	4	s.	Tallahatchie Dng. Com.
Shoccoe	Madison	.....	6	61.6	.....	85	4	25	19	44	0.97	.....	0.40	0.0	4	21	6	3	sw.	J. C. Pitchford.
Suffolk	Franklin	.....	8	63.9	.....	86	1	28	19	42	2.35	.....	0.97	0.0	6	18	8	4	s.	Prof. Geo. H. Kent.
Swan Lake	Tallahatchie	148	8	.....	.....	.....	.....	.....	.....	.....	2.98	.....	1.28	0.0	4	.....	.....	.....	.....	B. F. Saunders.
Tuchula	Holmes	130	4	61.2	.....	85	1†	26	19	45	1.70	.....	0.80	0.0	4	15	9	6	w.	Dr. M. P. Winkler.
University	La Fayette	502	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. J. W. Johnson.
Utica	Hinds	287	5	62.6[f]	.....	85[f]	7†	26[f]	19	42[f]	.....	.....	.....	0.0	.....	17[f]	5[f]	2[f]	s.	Dr. J. B. Dudley.
Vicksburg	Warren	247	38	63.8	+ 7.9	81	7	35	19	30	1.75	− 2.44	0.81	0.0	5	13	12	5	se.	U. S. Weather Bureau.
Water Valley	Yalobusha	300	20	61.4	+ 8.5	86	4†	28	19	41	2.07	− 1.52	0.75	0.0	4	18	11	1	s.	Miss Lula Erikson.
Woodville	Wilkinson	560	16	65.0	+ 7.0	85	1†	33	19	36	2.02	− 1.74	0.75	0.0	5	22	7	1	se.	James E. Lee.
Yazoo City	Yazoo	116	15	62.2	+ 7.2	85	4	29	19	42	1.80	− 1.18	0.88	0.0	4	19	6	5	se.	H. S. Orr.

TABLE 1.—*Climatological data for November, 1909. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Louisiana.																				
Abbeville	Vermilion	18	22	63.8[a]	+ 3.0	84[a]	6	32	18	48[a]	1.59	− 2.00	0.58	0.0	5	16	11	3	se.	Hon. C. J. Edwards.
Alexandria	Rapides	77	21	63.4[a]	+ 6.1	86[a]	4†	27	19	44[a]	2.32	− 2.08	0.72	0.0	5	10	9	11	s.	Miss Nellie Graham.
Amite	Tangipahoa	130	21	61.6	+ 3.0	85	4†	28	19	44	1.38	− 2.19	0.80	0.0	4	11	19	0	n..	Miss Lula M. Wentz.
Baton Rouge	E. Baton Rouge	35	20	65.0	+ 5.8	86	1†	33	19	34	4.00	+ 0.71	3.00	0.0	6	18	0	12	ne.	Elmo M. Bott.
Burnside‖	Ascension	20	9	63.8[e]	+ 3.5	85[l]	13	33[a]	19	41[l]	1.70	− 0.64	0.70	0.0	4	19	9	2	e.	C. S. McFarland.
Burrwood	Plaquemines	1	19	69.9	+ 4.1	86	6	46	18	27	0.08	− 2.68	0.05	0.0	2	17	13	0	ne.	Graham Myers.
Calhoun	Ouachita	180	17	62.0[b]	+ 7.2	85	3†	26[d]	19	42[d]	0.95	− 3.78	0.54	0.0	6	12	9	9	s.	N. L. Exp. Station.
Cameron	Cameron	6	14	69.8	+ 8.5	81	1†	41	18†	30	.....	.....	.....	0.0	...	5	25	0	se.	State Biologic Station.
Cheneyville	Rapides	67	22	63.6	+ 6.3	86	1†	27	19	46	1.35	− 2.81	0.47	0.0	4	21	5	4	e.	Walter I. Tanner.
Clinton	East Feliciana	113	20	64.5	+ 5.8	85	7	30	19	39	1.19	− 1.81	0.40	0.0	5	10	5	15	n.	John A. White, jr.
Collinston	Morehouse	65	7	62.1[d]	.....	86[c]	6	26[d]	18	46[d]	.....	.....	.....	0.0	.....	.....	.....	.....	.....	W. A. Page.
Covington	St. Tammany	39	17	63.0	+ 3.5	85	1	29	19	48	0.53	− 2.36	0.25	0.0	4	14	5	11	n.	C. Champagne.
Dodson	Winn	.....	1	63.8	.....	85	1†	29	18†	43	1.60	.....	0.72	0.0	5	19	7	4	s.	J. P. Lucas.
Donaldsonville	Ascension	33	19	66.3	+ 4.8	84	5	36	19	38	3.15	− 0.38	1.75	0.0	3	25	4	1	e.	John F. Park.
Farmerville	Union	177	19	61.2[c]	+ 6.7	85[c]	3	27[c]	18	50[c]	1.86	− 2.75	1.22	0.0	4	11	8	11	s.	W. P. Chandler.
Ferriday	Concordia	.....	3	62.8	.....	84	1	26	19	43	2.29	.....	0.93	0.0	5	22	0	8	s.	R. Z. Slater.
Franklin	St. Mary	10	17	65.8	+ 5.2	86	4†	34	19	45	1.53	− 2.17	0.56	0.0	7	16	5	9	n.	Miss Josephine M. Bonney
Grand Cane	De Soto	302	3	63.4[a]	.....	87[a]	5	29	19	54[a]	3.16	.....	1.15	0.0	6	11	6	13	s.	J. J. Paxton.
Grand Coteau	St. Landry	93	17	66.4	+ 6.8	85	1†	32	19	42	0.94	− 2.80	0.35	0.0	6	20	10	0	se.	St. Charles College.
Hammond	Tangipahoa	44	10	64.3	+ 6.4	89	30	29	19	51	1.32	− 2.15	0.75	0.0	3	26	3	1	se.	C. C. Carr.
Houma	Terrebonne	.....	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. M. Haggerty.
Jennings	Calcasieu	30	11	65.6	+ 5.8	86	1	34	19	40	4.18	+ 0.93	2.04	0.0	6	11	17	2	se.	J. F. Buch.
Lafayette	Lafayette	36	22	64.6	+ 4.8	86	8	30	19	41	0.95	− 2.57	0.28	0.0	7	17	7	6	e.	J. J. Davidson.
Lake Charles	Calcasieu	22	21	63.0	+ 3.5	86	3	31	19	44	2.10	− 2.54	1.16	0.0	4	16	6	8	n.	A. O. Boudreaux.
Lakeside	Cameron	.....	8	67.2	.....	85	6†	37	18	35	1.85	.....	1.25	0.0	2	28	0	2	ne.	L. J. Nunemacher.
Lawrence	Plaquemines	6	19	64.0	+ 2.8	85	2†	44	25†	33	2.20	− 0.35	1.56	0.0	4	27	0	3	s.	H. C. Warmoth.
Liberty Hill	Bienville	.....	22	65.1	+ 8.5	90	3†	26	19	48	0.96	− 3.70	0.46	0.0	4	16	8	6	s.	Dr. E. A. Crawford.
Logansport	De Soto	192	4	.....	.....	.....	.....	.....	.....	.....	1.02	.....	0.40	0.0	5	12	5	13	s.	Mrs. Bettie M. Dennis.
Melville	St. Landry	45	22	62.9	+ 4.1	86	3†	28	19	47	1.67	− 1.96	0.76	0.0	6	15	8	7	e.	Chas. B. McNeill.
Minden	Webster	194	21	62.0	+ 6.6	88	4	27	19	48	1.74	− 2.34	0.75	0.0	6	10	12	8	s.	Miss Ethel Fort.
Monroe	Ouachita	82	22	63.6	+ 7.2	87	1†	30	19	41	0.86	− 3.24	0.48	0.0	4	21	0	9	s	Eugene Stannard.
Morgan City	St. Mary	14	4	.....	.....	.....	.....	.....	.....	.....	2.80	.....	2.32	0.0	5	22	3	5	e.	Virgil E. Kinsey.
Newellton	Tensas	.....	2	61.1	.....	82	8†	28	19	39	1.85	.....	0.75	0.0	5	11	16	3	s.	John D. Fultz.
New Iberia	Iberia	15	19	.....	.....	.....	.....	37	18	.....	2.30	− 0.52	1.10	0.0	6	12	17	1	sw.	Mrs. Jno. A. Gebert.
New Orleans (1)	Orleans	15	35	67.4	+ 6.8	83	1	45	24	22	1.18	− 2.61	0.53	0.0	6	21	6	3	e.	U. S. Weather Bureau.
New Orleans (2)	....do	18	22	66.8	+ 6.4	88	1	36	19	37	1.59	− 1.44	0.45	0.0	5	20	5	5	s.	Sugar Exp. Station.
New Orleans (3)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.24	.....	0.55	0.0	4	.....	.....	.....	.....	
New Orleans (4)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.38	.....	0.69	0.0	5	.....	.....	.....	.....	Sewerage and Water Board, New Orleans Drainage Commission.
New Orleans (5)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.52	.....	0.63	0.0	4	.....	.....	.....	.....	
New Orleans (6)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.21	.....	0.56	0.0	4	.....	.....	.....	.....	
New Orleans (7)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.31	.....	0.46	0.0	6	.....	.....	.....	.....	
New Orleans (8)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.98	.....	0.65	0.0	4	.....	.....	.....	.....	
Opelousas	St. Landry	83	18	65.6	+ 6.8	90	8	28	19	48	1.37	− 2.24	0.41	0.0	7	14	6	10	e.	Andrew Moresi.
Pearl River	St. Tammany	.....	3	.....	.....	.....	.....	.....	.....	.....	1.42	.....	0.62	0.0	5	21	3	6	w.	George F. Bancks.
Plain Dealing	Bossier	268	17	62.3	+ 7.2	86	3	27	19	46	1.42	− 2.19	0.52	0.0	5	16	6	8	se.	Leon Sanders.
Rayne	Acadia	44	18	65.2	+ 4.8	86	6	32	19	40	2.54	− 1.45	1.15	0.0	4	20	2	8	n.	A. P. McNeil.
Reserve	St. John Baptist	.....	8	59.0	.....	84	6	28	19	46	0.00	.....	0.00	0.0	0	8	22	0	se.	Leon Godchaux Co.
Robeline	Natchitoches	147	14	61.2[a]	+ 4.1	87[a]	1	25	18	47	0.63	− 3.40	0.28	0.0	3	12	10	8	s.	Miss Ruby McCook.
Ruston	Lincoln	312	13	63.0[c]	+ 6.1	86[c]	22	34[c]	24	45[c]	.....	.....	.....	.....	.....	.....	.....	.....	n.	J. C. H. McKinney.
Schriever	Terrebonne	17	18	67.8	+ 7.3	91	7	32	25	54	0.33	− 2.65	0.18	0.0	2	21	3	6	e.	Charles V. Moore.
Shreveport	Caddo	249	37	62.8	+ 7.5	82	6	34	18	39	0.77	− 3.31	0.25	0.0	8	14	7	9	se.	U. S. Weather Bureau.
Simmesport	Avoyelles	.....	4	.....	.....	.....	.....	.....	.....	.....	1.64	.....	0.70	0.0	5	10	6	14	s.	W. P. Denny.
Southern Univ. Farm	Jefferson	.....	14	.....	.....	.....	.....	.....	.....	.....	1.52	− 1.10	1.00	0.0	5	18	8	4	se.	F. L. St. Martin.
St. Francisville	West Feliciana	115	5	58.4	.....	84	8	33	24	48	1.31	.....	0.73	0.0	4	22	2	6	n.	L. P. Kilbourne.
Sugartown	Calcasieu	.....	17	62.0[c]	+ 3.3	80[c]	21	35[c]	19	32[c]	2.20	− 1.90	1.60	0.0	2	.....	.....	.....	.....	G. W. Richardson.
Tallulah	Madison	91	1	63.0	.....	86	3	24	18	47	2.19	.....	1.11	0.0	4	13	17	0	.....	G. P. Blair.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
‖ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2—*Daily precipitation for November, 1909. District No. 7, Lower Mississippi Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado.																																	
Blaine	Cimarron												*	*	*	.90													.20		.30		1.40
Buena Vista	Arkansas																																
Calhan	Big Sandy																																
Canon City	Arkansas												.35			.40														.43	.30		1.48
Colorado Springs	Fountain												.90	T.	.05	.94						T.						.03	T.	.38	T.		.230
Cripple Creek	Oil Creek										.06		.24		T.	.55							.05							.08	.20		1.18
Cuchara Camps	Cucharas											*	.65	.30	.02							.02						*	.48	.67	.62		2.76
Eads	Big Sandy																													.36			0.36
Fairview	St. Charles												.20	.05	.67	1.00													.34	.97	.95		4.18
Florence	Arkansas												.45		.29															.68	.32		1.74
Garfield	Little Arkansas										.12	.06	.63			.34						.47							.10	.65	.12		2.49
Glen Eyrie	Fountain											*	.99		*	.82												.10	.53	.19			2.63
Hamps	Big Sandy												.32			.70													*	.13	T.		1.15
Hermit Lake	Grape Creek																																
Hoehne (near)	Purgatoire												.20	.20		.30													*	*	1.40		2.10
Holly	Arkansas												.90			.01	.09													.32	.40		1.72
Lake Moraine	Fountain										.01		.70		.05	.77	.05											.17		.57	.53		2.85
Lamar	Arkansas												.80			.18														.26	.21		1.45
Las Animas	....do												.37	.22	.32	.27						T.						.16	.13	.11	.42		2.00
La Veta Pass	Cucharas												.43		T.	.35												.55	T.	.50	.70		2.43
Leadville	Arkansas										.04	T.	.20	.04	.01	.16	T.				T.	.21	.50					.02	.06	.24	.02		1.50
Limon (near)	Big Sandy												.18			.27														.25			0.70
Marshall Pass	Arkansas										T.	.25	.30	T.		.42						.30							.10		.40		1.77
North Lake	Purgatoire												.92			1.15												.30		.85			3.22
Pueblo	Arkansas												.54	T.	.20	.16						T.						T.	.28	.12	.23		1.53
Rockyford (near)	....do												.40	.13		.14	.13	T.											T.	.20	.07		1.07
Saint Elmo	Chalk Creek										.15	.05	.46	.10	.15	.11						.28							.19	.68	.25		2.42
Salida	Arkansas												1.60		.30	.40						T.							.12	.53	.18		3.13
Santa Clara	Cucharas																																
Sheridan Lake	Arkansas														.86	.05						T.								.20	.40		1.51
Stonewall	Purgatoire										T.		.60		T.	.30						T.						.02	.26	.53	.18		1.89
Trinidad	....do												.20			.05												.32	.26		.38		1.21
Victor	Oil Creek										.07	T.	.30		T.	.49	.05											T.	.10	.15	.10		1.26
Vilas	Cimarron												.75																	.37			1.12
Westcliffe	Grape Creek												.80		*	.62												.07		.27	.50		2.26
Winfield	Clear Creek										.03	T.	.32	.02	.06	.04					T.	.16	.03				T.	.02	.02	.24	.13		1.07
Wortman	Arkansas								T.	T.	0.19	T.	.21								T.	.43					T.	.25	T.	T.	.55		1.63
New Mexico.																																	
Abbott	Canadian												.14	.06															.72	.36			1.28
Albert	....do												.43	.20														T.	.63		.48		2.21
Arch	Red													.40																1.15			1.55
Aurora	Canadian												.27		T.	.66													.42				1.35
Bell Ranch	....do												.07	.11		.03												T.	.24	.06			0.51
Black Lake	....do												.20			.25													.27				0.72
Cabeza	....do										.01	.03	.01			.10												T.	.45	T.	.45		1.05
Campana	....do												.04	.12	T.	.34												.04	.60	.50			1.64
Chacon	....do													.21	.36													.39	.12		T.		1.08
Cimarron	....do											T.	.10	T.	T.	.10													.77		.04		1.01
Clayton	....do												.06	.96	.08	.24													.56	.04	.10		2.04
Cuervo	....do												.61	T.		T.													.27	.01	.01		0.30
Dawson	....do										.06					.29													.50	.35			1.20
Dorsey	....do																																
Elizabethtown	....do									T.			.48			.27													*	1.20			1.95
Fort Union	....do												.10	T.		.12													.20				0.42
Hayden	....do																																
Lake Alice	....do										.31				*	1.17													.23		.22		1.93
Logan	....do													.62															.81		.40		1.83
Los Alamos	....do																											*	.18				0.18
Maxwell City	....do																												*	.50	T.		0.50
Melrose	Red													.72																.30	.08		1.10
Miami Ranch	Canadian												.20			.03													.76				0.99
Montoya	....do																												.30	.10			0.40
Nara Visa	....do												.25	.50		.10													.50	.30			1.65
Raton	....do												.16			.81														.15	.15		1.27
Rociada	....do																																
Roy	....do										.50	.02				.30													.90	.24			1.91
San Jon	....do													.45		T.												*	.45	T.	.23		1.13
Solano (1)	....do												.37	.12		.27												T.	.93		.64		2.33
Solano (2)	....do												.42	.12		.25													.56		.33		1.68
Springer	....do													.10															.63	.08	.32		1.13
Taylor	....do												.04	T.		T.													.80	.40	.06		1.30
Trementina	....do											T.			T.														.35	T.			0.35
Tucumcari (1)	....do												T.	.33														T.	.87	.39			1.59
Tucumcari (2)	....do												*	.51		.04												*	.90	1.02			2.47
Vermejo Park	....do									T.			.36			.25													.45	.36			1.42
Wagon Mound	....do												T.			T.													.96		.13		1.09
Texas.																																	
Amarillo	Canadian												.99	.12	T.	.24												.57	.98	.35			3.25
Arthur	Red								.70				.50		.70	.30	.20	T.					.06										2.46
Bonham	....do								.08				.31	.73			.47													T.	.48		2.07
Canadian	Canadian													2.10		.09	.03	.02										2.56	.83	.44		6.07
Channing	....do																																
Childress	Red							.45																						2.00	T.		2.45
Chillicothe	....do							.13						1.07		.36	.11											1.54	1.10	.26			4.57
Clarendon	....do													1.40		.05	.05											4.60	1.03	.10			6.63
Clarkesville	....do								.27			T.			.35	.50	.93						T.							.70			2.75
Claude	....do													1.46		T.												1.75	1.01	T.			4.22
Dalhart‖	Canadian												.33	.17		.07													.14	.50			1.21
Denison	Red	.20							.06	T.			T.	.08	.70	.08	.34												T.		.08		1.54
Henrietta‖	....do																																
Hereford	....do																																
Higgins	Canadian																																
McLean	Red																																
Memphis	....do							.20						1.60		.01													2.35	.20			4.36
Miami	Canadian												.39	1.41	.01		.03												2.02	.52	.20		4.58
Mobeetie‖	Red										2.30																	2.10		.80			5.20
Nazareth	....do												1.23			.04													1.50	.15			2.92
Ochiltree	Canadian													1.00	.12															1.50	1.00		3.62
Pampa	....do																																
Paris‖	Red	.52							.58				.38		.74	.22	.34																2.78
Plemons	Canadian												.08	1.00		.12						T.						1.05	.75	.21			3.21
Quanah	Red							.50						.50		.40												.80	1.40	.70			4.30
Sherman‖	....do	.54							.05				T.	T.	1.13	.15															T.		1.87
Sulphur Springs	....do											T.			.75		.60						T.							.18			1.53

TABLE 2.—*Daily precipitation for November, 1909. District No. 7*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Texas—Cont'd.																																	
Texline	Canadian												1.56	.08	T.	T.												1.90	.16	.69	T.		4.39
Tulia	Red						T.							.28															1.00	2.00			3.28
Wichita Falls	...do																																
Kansas.																																	
Anthony	Arkansas												.40	2.75	.17	.84										T.		T.	.61	.66	.74		6.17
Ashland	Cimarron	.05											1.40	2.40	.04	.08				.06	T.	.03	.04					.04	3.90	1.65	2.00		11.69
Burlington	Neosho							.07					.96	1.63		.78							.07								.67		4.18
Chanute	...do					.41		T.	1.33	T.		.15	.82	.10	1.10	.41	.55														.92		5.79
Cimarron	Cimarron												1.60	.50		.15														2.01	1.20		5.46
Coldwater	...do	T.			T.								1.17	1.75	.13	.07	T.					T	T.					T.	2.80	.97	.85		7.74
Columbus	Neosho					.22		T.	.48	.01		2.28	1.80	.10	.92	.66	1.01						.06								.15		7.69
Coolidge	Arkansas											.96	.04			.06													*	.90			1.96
Cottonwood Falls	Neosho	.14						T.	.01				.14	4.00	1.34	.34	.46				.01		.05			.01			.65	.01	.29		7.45
Council Grove	...do												5.00	2.05	.08														.03				7.18
Cunningham	Arkansas												*	*	4.00	.50										T.		T.	.80	.85	.60		6.75
Dodge City	...do												1.10	.38		.11						.03					T.	.26	2.08	1.13	.72		5.81
Eldorado	...do	.04						.02					.03	3.90	1.20	.22	.87						.04						.63	.02	.50		7.47
Ellinwood	...do	.18											2.00	2.20	.28	.15	.09					T.	.08					T.	.75	.60	.51		6.84
Emporia	Neosho	T.						T.	T.				.14	3.10	1.02	.75	.20						.08						.13	T.	.20		5.62
Eureka	Verdigris					.05						.04	.15	2.50	1.20	.12	.31												T.		.42		4.79
Fall River	...do					.03	T.	T.	.10				.65	.90	1.40	.65													T.	T.	1.00		4.73
Fargo	Cimarron												.78	.30		.03						T.						1.77	.12	1.27		4.27
Fredonia	Verdigris					.36		T.	1.20			.36	.66	.09	1.03	.25	.45					.06								T.	.36		4.82
Garden City	Arkansas												.90	.10		.15						T.	T.					.25	.65	.80	.92		3.77
Great Bend	...do																																
Greensburg	...do	.12											1.67	1.85	.14	.12						T.						T.	2.20	1.00	.70		7.80
Grenola	Verdigris					.10	.16					T.	.41	3.02	.06	.48	.06						.04			T.			.05		.68		5.06
Howard	...do				.16			.10				.47	1.00	2.00		.52							T.						T.		.82		5.07
Hugoton	Cimarron												.70	.20		.05						.01							.95	.90	.35		3.16
Hutchinson	Arkansas	.20								T.			1.21	2.20	.31	.62	.08						.06						.88	.63	.33		6.52
Independence	Verdigris					.23		.01	.25			.08	.58	.11	1.35	.36	.52					T.	.07				T.		T.		.86		4.42
Iola	Neosho					.09		.48	T.			.17	.41	1.04		.82	.03						.10				T.				.54		3.68
Jetmore	Arkansas	.36											1.38	.70		.12	T.					T.					T.	T.	1.47	1.05	1.41		6.49
Kingman	...do												.49	2.99	.27	.52	.03											T.	1.11	.96	.74		7.11
La Crosse	...do											.03	1.31	1.06		.19													1.21	.62	.21		4.63
Lakin	...do												.73	.11		.10													.45	1.62			3.01
Larned	...do	.10											2.00	1.30	.10	.10	T.						T.						1.43	.50	.22		5.75
Lebo	Neosho	.08						T.	.16				.15	3.84	.65	.75	.26					T.	.08						.02	T.	.52		6.51
Le Roy	...do	.37				T.		.12	T.			.35	.20	1.12		.68						.09											2.93
Liberal	Cimarron												.74	.26		.29						T.							2.20	.50	.50		4.49
Macksville	Arkansas												1.00	1.90	.14	T.	T.					T.	T.					T.	1.15	.50	.39		5.08
McPherson	...do	.22											.92	2.17	.90	.64													.94	.46	.10		6.35
Madison	Verdigris	.45						T.			T.	.09	T.	3.91		.22	1.02					T.	.15			T.			T.		.28		6.12
Marion	Neosho	.05											.38	3.25	1.18	.72	.26					T.	T.			.05	T.	T.	1.08	.10	.16		7.23
Medicine Lodge	Arkansas												2.53	.97		.62												1.20	.60	.99	.15		7.06
Medora	...do																																
Mt. Hope	...do							T.					.91	3.00	.72	.45	.21									T.			1.36	.25	.26		7.16
Neosho Rapids	Neosho	.06	T.					.25						2.90	1.54		1.18			T.		.06						.03	T.		.65		6.02
Ness City	Arkansas												.96	.74		.10													.95	.65	1.03		4.43
Newton	...do												.61	3.05	1.00	.70	.22												1.45	.24	.05		7.32
Norwich	...do												.70	4.10	.30	.70	.16						.02			T.	.T	T.	1.34	.42	.75		8.49
Oswego	Neosho					.14		.02	.25			*	1.62	.67		.97							.10								.85		4.62
Pratt	Arkansas												.62	2.40	.40	T.													2.00	1.00			6.42
Rome	...do					.04		.05					.20	4.31		.10	.96							.10					.55	.10	.70		7.11
Sedan	Verdigris					.25		.11				.03	.70	.52	1.00	.26	.18						.08						T.	T.	.75		3.98
Toronto	...do												.50	1.60	.75	.55														.70		4.10
Ulysses	Cimarron												1.04	*	*	.10												*	*	1.44			2.58
Walnut	Neosho					.11		T.	.62	T.		.87	.73		.65	.25	.95					T.	.16										4.34
Wichita	Arkansas	.01											2.92	2.19		.62						.01	.03			T.		T.	.55	.08	.28		6.69
Winfield	...do							.60					.22	4.00		.48							.25						.40		.60		6.55
Yates Center	Verdigris					.09		T.	T.	T.		T.	.44	.44	1.60	.20	.62														.57		3.96
Oklahoma.																																	
Ada	Canadian																																
Alva	Arkansas												.28	3.60	.21	.59												1.25	1.25	.52		7.70
Apache	Canadian							T.					T.	1.79	.01	.06	.41	T.								T.	T.		.08	2.00	1.21		5.56
Arapaho	Washita							.03					.03	2.22		.90						T.				.05	T.	T.	2.40	2.08	1.05		8.76
Ardmore	Red	T.							2.95					.03	1.30		.58													T.	1.10		5.96
Bartlesville	Arkansas							T.				.50	1.00	1.15		1.10							T.							1.26			5.01
Beaver	Canadian												1.80	.80	.20	T.						T.					T.	T.	2.20	.35	.76		6.11
Blackburn	Arkansas	.19				.07		T.				.26	.95	.47	1.38	.19	.50														.96		4.97
Buffalo	Cimarron																																
Cache	Red							.10						1.75													T.			4.00	2.00			7.85
Calvin	Canadian	.43							.73				.03	.12	.94	.03	.86														.03			3.17
Chandler	...do	.43											.15	T.	1.20		1.07														.15			3.00
Chattanooga	Red								.03					.80		.05													3.00	3.00	1.40			5.58
Chickasha	Washita							T.					T.	2.26		.05	.44													.93	.88			4.56
Cloud Chief	...do							.13					.52	1.10		.40													.80	3.17	1.20			7.32
Dacoma	Cimarron						.30					.34		3.60		.46													2.85					7.51
Durant	Red	.59							.55				T.	.35	.65	.11	.40						T.								T.			2.65
Eldorado	...do							T.						1.52		.32												.60	2.00	.65				5.09
Enid	Cimarron					.51		.10						2.25	1.25		.35													.20	.25	.89			5.80
Erick	Red												.10	2.50		.13	T.												3.80	.35	.91			7.79
Fairland	Arkansas	.02				.73			1.15	.04		.07	3.12		.63	.74	1.13															T.			7.63
Fort Gibson	...do	1.64							.63	.03	.03		.02	.39	.66		1.66						T.									T.			5.06
Frederick	Red							.01					T.	.56		.31	.22												1.76	1.85	1.95			6.66
Gage	Canadian				.23									3.28		.02	.08					T.							4.05	1.45	2.32			11.43
Guthrie	Cimarron					.10		T.					1.78	2.35	.82	.10															.85			6.00
Guymon	Canadian											.56						.46				T.							2.11	1.01				4.14
Harrington	Red												.08	4.33		.40													2.88	.35	.68			8.72
Hartshorne	Canadian								.50	.01			.01				1.80														.03			2.35
Healdton	Red							.05	.94			T.	T.	2.55		.18	.33										T.			.32	1.15			5.52
Hennessey	Cimarron					.10		.06				.20	1.80	1.10	.17	.10						.02					T.	T.	.60	.71			4.86
Hobart	Red				T.			T.					.09	1.51		.30	.23												1.46	2.20	1.39			7.18
Holdenville	Canadian	.40							.50					.18	1.50		.95																		3.53
Hooker	...do												.40	.29		.09													1.64	.63	.36			3.41
Hurley	...do																																	
Idabel	Red																																	
Jefferson	Arkansas					.40		.90					.17	3.38		.76						T.							.44	.63	1.03			7.71
Kenton	Cimarron												.62	.10	T.	.20						T.					T.	.40	.20	T.			1.52
Kingfisher	...do				.12		T.	T.					1.30	3.18		.24										.02			.13		1.13			6.12
McAlester	Canadian								1.46				.01	.08	.88	.39	.94					T.									1.04			4.80
McComb	...do								.55						2.40		.70						T.								2.45			6.10
Mangum	Red							T.				T.	.75	.74	T.	.31									T.	T.	T.		1.34	.66	2.23			6.03
Marlow	Washita								T.				T.	.12	1.87		.53													.57	1.11			4.20

TABLE 2.—*Daily precipitation for November, 1909. District No. 7*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oklahoma—Cont'd.																																	
Meeker	Canadian								.15			.12	.15		1.90	.33	.72														1.65		5.02
Muskogee	Arkansas								.75				.89		1.48	.96	.92														.24		5.24
Mutual	Canadian				.34								.10	3.75	.36													3.60	1.20			9.35
Neola	Washita				T.			T.					T.		1.59		.24										T.			4.53		6.36
Newkirk	Arkansas				.12		.09						.31	3.00	.90	.07												.17		.72		5.38
Norman	Canadian				.01			.02						1.47		.55				.49									.10	1.12		3.76
Okeene	Cimarron					.09		.03					T.	2.73		.80	.08					T.	T.			T.		T.	.16	1.72	.61		6.22
Oklahoma	Canadian							.01				.65	.07	3.22		.45	.01												.01	.15	.72		5.29
Okmulgee	...do					T.		T.						.05	.86	.30	.17													1.25		2.63
Pauls Valley	...do																																
Pawhuska	Arkansas					.10		.34				.14	.20	.40	.74	.24	.46														1.00		3.62
Perry	...do					.14		.10	.01			.50	.41	2.00	1.55	.08	.13									T.				T.	1.36		6.28
Ravia	Washita								1.35			.01		.66	.26	.22	.52											.03			1.97		5.02
Sac & Fox Agy	Canadian												.38		.20	1.50	.62														1.62		4.32
Shawnee‖	...do	.36							.40				.01	.14	1.90		.52										T.		T.		.55		3.88
Snyder	Red							.06						.64		.17	.26												1.12	2.92	1.82		6.99
Stillwater‖	Cimarron	.17				.01			.70				1.56	.34	2.50		.21														.58		6.07
Supply	Canadian				.37								.40	3.13		.10	.01											3.80	1.82	1.55		11.18
Tulsa (1)	Arkansas												1.60	.09	1.72		.88														.07		4.36
Tulsa (2)‖	...do																																
Vinita	...do					.40			1.00	T.		.10	4.00		.70	.60	.80														.30		7.90
Wagoner	...do								.07	T.	T.		.52	T.	.62	.65	.75						.01								.95		3.57
Waukomis	Cimarron					.22		T.					.30	3.23	.10	.05	.15					T.				T.		T.	.10	.40	.80		5.35
Weatherford‖	Canadian												.09	1.62	1.08	.06	.74												1.30	2.20	1.35		7.44
Webbers Falls	Arkansas								.23				.02	.95		.12	.43														.64		2 39
Whiteagle	...do					.17		.03				.04	.44	2.30	.41	.24	.04									.03					1.02		4.72
Woodward	Canadian					.15	.03						.20	2.48	.02	.28	.02					T.						3.42	1.63	1.31		9.54
Missouri.																																	
Belle	Meramec								1.10				1.90		.10		1.55						.05										4.70
Birchtree	Black																																
Cape Girardeau	Mississippi																																
Caruthersville	...do	.36					.15		.20	.22					.91	1.15	.57						.52										4.08
Dean	Neosho					.81			2.82	.03			.66		.60	.76	.73		.01				.05										6.47
Doniphan	Black	.58					.43		.05	T.		T.			1.02	.43	1.03						.85								T.		4.39
Farmington	Mississippi								.88					.20	.50	.30							.70							.50	.30		3.38
Gano	Meramec	.35						T.	1.94	.13			2.30		.31		.71						.29										6.03
Goodland	Black							.43	1.43						1.20	*	.50						.35										3.91
Greenville	Mississippi	1.25					T.		.30						.90	T.	1.10						1.12										4.67
Ironton‖	...do	.87						T.	.90	.10	T.			.20	.73	.43	.74	.02				*	T.	.65						T.	T.		4.64
Jackson	...do								.51						.63	.46	1.02						1.03										3.65
Joplin	Neosho								.62	.10				2.20	.75	.85	1.10						.10										5.72
Koshkonong	Black	.70				.53	.03	.32	.02			.01			.57	.30	.91						.51								T.		3.90
Lamar	Neosho	.85				T.		*	.35	.06		*	1.65	.69	.44		1.90					.06								T.		6.00
Marble Hill	Mississippi								1.00						.95	.65	1.00						1.05										4.65
Mt. Vernon	Neosho					.08	.10		1.75	.04			5.50		.15	.45	.40						.02										8.49
Neosho	...do	.01				.63			2.68	T.		.30	5.88		.40	1.28	1.20						.07								.07		12.52
Oakfield	Meramec	.21						.03	1.07				2.42		.26	.43	.24					.13	.11		T.						T.		4.90
Olden	White						.20		.68						.73		.46						.53								.05		2.65
Sikeston	Mississippi	.20					T.	T.	.64	.24					.92	.65	.95					1.40											5.00
Springfield	White					.01		T.	1.61			.09	2.74	.08	.19	.39	.32						.04								.20		5.67
Steelville	Meramec								.85				1.00	.25		.49							.41							T.	T.		3.00
Willow Springs	White											.20			.10		.70					.20											1.20
Kentucky.																																	
Blandville	Mississippi	.20					.03		.39	.30					.82	.97	.41					.01	.61										3.74
Lynnville	...do	.33					T.			.63					.32		2.04																3.32
Tennessee.																																	
Arlington‖	Mississippi																																
Bolivar‖	...do																																
Brownsville‖	...do	T.					.20	.90		.85					T.	1.18	.90	1.04						.31							T.		5.38
Covington‖	...do	.20					1.10	.50		.75					.20	2.25	1.10	.74						.25									7.09
Dyersburg‖	...do						.45	.20		.70					T.	2.00	1.20	.70						.40									5.65
Jackson	...do	.10					.23		T.	.25					.07	.28	.71						.28										1.92
Kenton	...do	.22					.38		.35	.32					.40	3.19	.60						.45										5.91
Memphis	...do	.04					T.		1.26					T.	1.36	1.57	.32						.32										4.87
Milan‖	...do	.08					.01	.34		1.13					.05	.70	.75	.55							1.07								4.68
Trenton	...do	.14					.61		.46	.06					.33	2.12	.93						.34										4.99
Union City	...do	.21					.05		.26	.31					.41	2.00	.50						.97										4.71
Arkansas.																																	
Alicia	White	.25							.20						2.10	1.75													1.00				5.30
Amity	Ouachita	.47					T.		T.	T.	T.				.89	.44	1.10						.29								T.		3.19
Arkadelphia (near)	...do	.69							.10		.03		T.		.20	1.97	.83						.08										3.90
Arkansas City‖	Mississippi	.80								.16					.46	.84		.20															2.46
Batesville (1)	White																																
Batesville (2)‖	...do	.52					.64		.20	.12					.62	.12	.68	.28						.36								.01		3.55
Bee Branch	Arkansas	.60	.20					.45					T.		.90	.20	1.20						.40										3.95
Benton	Ouachita														.42	.85	.90						.60										2.77
Bentonville	Arkansas					.51		.01	.64			.11		.28	.01	.10	.31						.61								.45		2.43
Bergman	White	.40				.67	1.11		.68						.46	T.	.59						.14										4.05
Black Rock‖	...do	.57					.25	.05		.32					1.52	.32	.88	.90					T.	.82							T.		5.63
Brinkley‖	...do	.92								.18					.55	.50	.18	.30						.66										3.29
Calico Rock‖	...do	2.24					.50			.12	.20				.48		1.10	T.						.48										5.12
Camden‖	Ouachita	1.72							1.00	.02					.24	.54	.12	.40						.10							*		4.14
Centerpoint	Red								.35					.60		*	1.10					T.	.32								T.		2.37
Clarendon‖	White	.30								.27					.22	.67	.14							.64								T.		2.24
Conway	Arkansas	.03					.58		.05	T.	T.		.13		.66	.48	1.39						.64								T.		3.96
Corning	White	.46					.29		.54			T.			1.82	.73	.85						.74										5.43
Dardanelle‖	Arkansas	1.90					.20		.90	.10					.40		1.84									.24							5.58
Dodd City	White						2.50		.65						.43	.65							.26										4.49
Dutton	...do					.18									.76		1.20						.02										2.16
Earl	St. Francis	1.58							.26						.92	1.82	.98						.38										5.94
Eldorado‖	Ouachita	.27								1.54					.47	.30	.04	.13						.12										2.87
England‖	Arkansas	1.58							.08	T.				.60	1.10	.75	.55						.25								.32		5.23
Eureka Springs	White					*	3.12	1.10	T.	T.				.61		T.															.35		5.18
Fayetteville	...do						.02		.48					.31		.08	1.15																	2.04
Fort Smith	Arkansas						.01	.17	1.26					.34		.15	.33						.01								.88		3.15
Fulton‖	Red	2.20								.30						.70	.44																	3.64
Hardy	White	1.58					1.03		.60			T.			.49	.16	.88					T.	.65								.02		5.41
Helena (1) ‖	Mississippi																																
Helena (2) ‖	...do	.66								.66	.10				.80	1.74		.76						.34							T.		5.06
Hot Springs	Ouachita	.14							.01					.78		.32	1.25						.64										3.14
Huttig	...do	1.48								.27					.19	1.03	.22						.02										3.21
Jonesboro	White	.51				*	.35		.15	.04					.55	1.20	.90						.50										4.20
Junction	Ouachita								.60						.64	.17						.21											1.62
Lacrosse	White																																

TABLE 2.—*Daily precipitation for November, 1909. District No. 7*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Arkansas—Cont'd.																																	
Lake Farm	Arkansas	.40						.20	.60						1.20	1.52	.80						.32										5.04
Lewisville	Red	1.33							.15	.27					.25	.42	.35						.23								T.		3.00
Little Rock	Arkansas								.29	.01	T.		T.		.79	.97	.36						.58								T.		3.00
Lutherville	do					T.	1.20		1.16			T.			.90	.12	.45																3.83
McNeil	Ouachita								.84	1.26					.33	.09	.54						.08										3.14
Malvern‖	Ouachita	.70													.73	.20	1.00	.32						.47									3.42
Mammoth Spring	White	1.86					.52		.25							*	2.26						1.00										5.89
Marked Tree‖	St Francis							.25		.43					.25	1.55	.33	.65						.16	.11								3.73
Mena	Ouachita	.41							.55			T.			.42	.25	1.41						.25								T.		3.29
Mosaville	White					.18			2.21				T.		.67	T.	1.31					.41											4.78
Mount Nebo	Arkansas																																
Newport (1)‖	White	.80					.86			.73				.20	1.83	.88	1.63	.92						.10							.03		7.98
Newport (2)‖	do																																
Ozark	Arkansas					.05	.20		.60						.38	.40	.62						T.								T.		2.25
Pine Bluff‖	do	.30								.60					.90	.96	.10	.50						.52							*		3.88
Pocahontas	White	.60					.43		.15						1.40		1.42						.91										4.91
Pond	Arkansas	.02				.03			.67			T.	.16		.53	.49	.99						.03										2.92
Portland‖	Ouachita	.48								.13					.47	.40		.11								1.06							2.65
Prescott‖	do	.67							.03	.10					.27	.57	.63						T.	.11									2.38
Princeton	do																																
Rogers	Arkansas					.43	.10		1.57				T.		.38	.06	.63						T.								.02		3.19
Russellville‖	do																																
Spielerville	do					.07			.64						.50	.25	.37						.26								T.		2.09
Springbank‖	Red	.20								.34					.19	.07	.43	.15															1.38
Stuggart	Arkansas	.50							.16	.04					1.34	.43	.70						.27										3.44
Texarkana‖	Red	1.07							.20	.20					.50	.26	.30	.10						.07									2.70
Warren‖	Ouachita	1.78								.48					.56	.44	.20							.56									4.02
Whitecliffs‖	Red	1.75							.35	T.			T.			.70	.65							.20									3.65
Wiggs	Ouachita	.24							.13						.84	.37	1.14				T.	T.	.26										2.98
Wynne‖	St. Francis	.98					.04			.19					.04	2.41	.30	.64						.33									4.93
Mississippi.																																	
Anguilla	Yazoo									T.				1.90			.21						.80										2.91
Austin	do	.75							.90						1.00	.72	.55						.34										4.24
Batesville‖	do	1.30													.14		.65							.90									2.99
Byhalia	do	.23							.15	.12					.07	.47	.60						.49										2.13
Canton	Big Black	.40								.11				.10					.20					.07									0.88
Clarksdale	Yazoo	.93								.40					.67	.47		.45															2.92
Coffeeville	do	.30								T.				T.			1.05						.90										2.25
Corinth‖	Mississippi	.35								.14	.01				.20			.46						.68									1.84
Crenshaw	Yazoo	.53							.32	.03					.27	.86	.70						.66	.01							T.		3.38
Denmark	do	.40								.17					.20		.82						.95										2.54
Duck Hill	do									.45					.12		.91						.11										1.59
Edwards	Big Black	.21								.08				.04	.30		T.	.18					T.	.45									1.26
Enid	Yazoo																																
Fayette	Mississippi	.30								.08				T.	.50		.60						.48										1.96
Greenville‖	Yazoo	.75								.12					.55	.08		.18						.17									1.85
Greenwood‖	do										T.				.20	T.		.82						.04									1.06
Grenada	do				T.							T.					.73	.12										.23					1.08
Hernando‖	do	.30								.63					.15	3.00	.10	.70						1.60									6.48
Hickory Flat	do														.67		.65						.50										1.82
Holly Springs‖	do	.18								.02					.08	.04		.77						.75									1.84
Kosciusko‖	Big Black	.27								.01	.10				.09		1.52							.53									2.52
Lake Comorant	Yazoo	.53							.48	.02					1.06	1.70	.54						.72								T.		5.05
Lula	do	.59							.20						2.00	2.39							.98										6.16
Malone	do																1.10						.40										1.50
Marks	do	1.05													.33	.44	.50						.47										2.79
Natchez‖	Mississippi	.22									T.				.15	.65		1.26						1.05									3.33
New Albany	Yazoo	.33								.04					.16		.55						.50										1.58
Pontotoc	do	.35							T.	T.					.16	.80							.50										1.81
Port Gibson‖	Mississippi	.28								T.					1.05	.07		.37						.35									2.12
Ripley	Yazoo																																
Rosedale	do	1.40								.60					.58	.60		.60						.10									3.88
Senatobia	do	.39							.19	.02					.15	.32	.71							.37									2.15
Shoccoe	Big Black	.26								.40				T.	.01		T.	.30						T.									0.97
Suffolk	Mississippi	.05							.01	T.				.48	.97		.37						.47										2.35
Swan Lake‖	Yazoo	1.28													.40			.60						.70									2.98
Tchula	do									.20				T.	.10	T.	.80						.60										1.70
University	do																																
Utica	Mississippi																																
Vicksburg	do	.19								T.				.23	.58	T.	.22						.53										1.75
Water Valley	Yazoo	.75								T.					.20		.67						.45										2.07
Woodville	do									.13			.10	.69		.75							.35										2.02
Yazoo City‖	do	.18													T.	.40	T.	.34						.88									1.88
Louisiana.																																	
Abbeville	Coast	.33								T.				.10	.18		.58						.40										1.59
Alexandria‖	Red	.15								.72					.50			.65						.30									2.32
Amite‖	Coast															.80	.23						.05	.30								1.38
Baton Rouge‖	do									.10			.20		2.00	1.00		.20						.50									4.00
Burnside	do							T.						.25	.70			.70						.05									1.70
Burrwood	do									T.				.03	T.			T.															0.08
Calhoun	Ouachita								.08	.09				.05	.08		.54						.11										0.95
Cameron	Coast																																
Cheneyville‖	Red	.43								.40					.05		.47																1.35
Clinton‖	Coast		.17												.40	.06		.32						.24									1.19
Collinston	Ouachita																																
Covington‖	Coast												T.		.12	T.	.10	.06						.25									0.53
Dodson	Red									.32					.72	.04	.10						.42										1.60
Donaldsonville‖	Coast														.85	1.75		.55					T.										3.15
Farmerville‖	Ouachita								.23						1.22		.26						.15										1.86
Ferriday	do	.53								.08					.14		.93						.61										2.29
Franklin‖	Coast		.16							.01	.03		T.		.56	.16		.46					T.	.15									1.53
Grand Cane‖	Red								.25					.75								.28	1.15				.70	.03				3.16
Grand Coteau	Coast	.22						.15	T.					.02	.05	.15							.35										0.94
Hammond	do													.75			.32						.25										1.32
Houma‖	do																																
Jennings‖	do		2.04							.48					.30		.13	1.19						.04									4.18
Lafayette‖	do		.16							.04			.03		.28	.05		.15						.24									0.95
Lake Charles‖	do	1.16								.56					.12			.26															2.10
Lakeside	do	1.25															.60																1.85
Lawrence‖	do														.13		.43	1.56						.08									2.20
Liberty Hill	Red								.06					.31	.13		.46																0.96
Logansport‖	Sabine									.40					.38	.04	.13	.07															1.02
Melville‖	Red		.03						.76				.13			.21	T.	.30						.24									1.67
Minden‖	do	.35								.38					.49	.26	.12	.14					T.		T.						T.		1.74

TABLE 2.—*Daily precipitation for November, 1909. District No. 7*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Louisiana—Cont'd.																																	
Monroe‖	Ouachita	T.													.12	.04		.22						.48									0.86
Morgan City‖	Coast		.16													2.20	.12	.18						.14									2.80
Newellton	Mississippi	.25												T.	.50	.75	.15						.20									1.85
New Iberia	Coast	.10							1.10			.40		.35	T.		T.	.15						.20									2.30
New Orleans (1)	....do	T.	.01							.01				.53	T.		.35	.16					.12										1.18
New Orleans (2)	....do													.35	.45		.40	.27						.12									1.59
New Orleans (3)	Coast													.55			.29	.25					.15										1.24
New Orleans (4)	....do													.69	.01		.37	.20					.11										1.38
New Orleans (5)	....do													.63			.38	.29					.22										1.52
New Orleans (6)	....do													.56			.38	.16					.11										1.21
New Orleans (7)	....do										.04			.26	.01		.46	.28					.26										1.31
New Orleans (8)	....do													.19			.65	.09					.05										0.98
Opelousas‖	....do		.35						.10	.05			T.		.14	.05	T.	.27						.41									1.37
Plain Dealing	Ouachita	.06							.30						.44		.52						.10										1.42
Rayne‖	Coast		1.00											T.			.08	1.15						.31									2.54
Reserve‖	....do																																0.00
Robeline‖	Red	.25											.10			.28																	0.63
Ruston	Ouachita																																
Schriever‖	Coast														.15		T.	.18															0.33
Shreveport	Red								.17	.01	.01		T.	.01	.24	.16	.04						T.								.13		0.77
Simmesport‖	Red	.04							.14						.70			.60						.16									1.64
Southern Univ. Farm	Coast													1.00	.10	T.	.15	.22						.05									1.52
St. Francisville‖	Mississippi													.73	.18		.25							.15									1.31
Sugartown	Red	1.60																.60															2.20
Tallulah	Mississippi													1.11	.22	.31							.55										2.19

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 7, Lower Mississippi Valley.*

Date.	Colorado.						New Mexico.				Texas.				Kansas.										Oklahoma			
	Lamar.		Leadville.		Pueblo.		Albert.		Cimarron.		Amarillo.		Paris.‡‡		Dodge City.		Ellinwood.		Iola.		Liberal.		Wichita.		Ardmore.‡‡		Bartlesville.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Mid.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
1	71	30	42	13	71	27	71	34	72	19	69	37	82	51	72	37	71	38	68	44	71	37	68	46	74	47	73	50
2	76	30	50	20	76	29	75	39	77	29	77	41	83	45	77	39	78	36	74	36	78	36	77	41	82	46	81	39
3	86	36	58	26	75	33	78	40	72	40	81	47	84	47	82	41	83	40	81	47	85	40	83	49	84	49	85	42
4	72	30	54	26	78	33	75	45	76	30	81	50	84	46	80	44	84	39	82	43	81	37	81	50	85	48	86	42
5	78	23	55	22	74	32	77	47	74	35	79	46	74	49	79	43	80	43	72	51	81	40	73	54	84	55	79	57
6	80	32	56	24	78	36	78	42	73	26	83	45	84	56	76	51	77	41	72	47	84	40	75	48	84	61	85	49
7	66	40	50	20	62	33	68	43	60	30	62	44	82	58	62	40	71	50	72	50	74	34	71	52	78	62	85	68
8	68	20	53	15	48	25	59	32	60	25	59	31	68	57	57	27	59	32	51	46	61	27	53	39	60	54	74	50
9	72	27	52	21	69	26	65	37	67	20	70	40	73	58	68	35	64	37	58	46	71	33	59	45	67	43	63	48
10	72	45	39	20	62	36	70	47	65	47	78	54	76	48	80	57	76	55	71	54	80	45	72	56	74	54	74	52
11	62	29	32	11	50	24	64	35	52	27	69	44	78	61	61	38	71	41	72	50	75	35	67	50	77	65	74	64
12	51	30	27	18	43	30	53	36	44	32	70	38	74	61	45	35	56	37	65	46	51	33	66	45	75	64	74	51
13	45	30	29	0	34	29	50	32	46	29	38	32	76	63	35	29	39	35	71	47	38	30	49	37	71	66	71	65
14	34	26	27	2	31	23	50	32	44	18	40	30	67	48	32	27	38	26	48	32	37	25	44	31	55	41	65	41
15	34	22	30	8	31	19	50	36	44	32	53	35	70	48	32	22	33	25	48	30	37	27	36	29	68	43	55	34
16	35	9	28	− 3	42	10	51	29	52	22	50	26	54	52	38	19	34	19	39	26	43	20	34	22	47	39	43	30
17	46	12	40	9	35	13	48	28	50	14	52	27	56	30	48	22	40	23	42	23	51	24	41	25	53	30	50	26
18	51	22	45	14	53	18	61	29	67	18	60	31	61	30	58	30	56	28	52	22	60	29	55	28	58	28	63	25
19	62	28	39	20	65	46	68	35	66	29	76	31	68	29	72	31	66	38	61	37	73	30	59	36	65	35	67	44
20	69	32	44	30	70	40	74	39	62	42	76	38	76	34	73	37	71	36	67	49	75	37	65	43	75	53	73	51
21	56	31	35	25	46	31	64	45	65	32	62	34	83	48	51	29	59	32	58	43	57	31	53	36	79	60	65	57
22	49	29	34	20	56	28	59	36	64	28	54	34	57	54	38	25	38	25	43	32	59	30	39	28	49	40	57	32
23	67	34	42	29	70	46	71	42	70	35	70	39	61	32	73	30	64	29	50	31	73	30	51	30	57	30	60	32
24	70	36	51	25	69	36	73	45	72	29	71	42	68	33	73	38	75	41	62	40	73	40	64	40	68	38	66	41
25	71	33	53	22	67	35	73	41	69	32	76	42	71	40	67	35	61	35	62	41	77	35	59	45	70	50	63	43
26	76	33	44	25	70	37	68	45	65	30	71	48	79	42	71	50	71	52	68	58	72	48	73	59	71	54	71	57
27	71	35	41	24	63	31	63	38	59	28	71	33	73	52	65	32	66	59	65	59	71	50	68	57	72	61	67	61
28	35	27	32	− 1	36	30	50	29	47	23	33	30	75	58	32	30	63	32	64	41	62	30	57	34	72	61	61	48
29	36	30	32	14	34	29	36	20	40	19	33	29	77	56	38	32	42	33	55	41	48	33	58	39	72	60	76	45
30	36	29	33	8	41	29	39	28	36	17	34	26	.....	54	49	32	51	41	60	48	50	30	55	46	55	52	55	52
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	59.7	29.0	41.6	16.9	56.6	29.8	62.7	36.9	60.3	27.9	63.3	37.5	72.9*	48.0	59.5	34.6	61.2	36.6	61.8	42.0	64.9	33.9	60.2	41.3	69.4	49.6	68.5	46.5

Date.	Oklahoma.														Missouri.										Lynnville, Ky.		Jackson, Tenn.	
	Enid.‡‡		McAlister.		Mangum.‡‡		Muskogee.		Oklahoma.		Weatherford.‡‡		Woodward.		Caruthersville.		Ironton.‡‡		Lamar.‡‡		Olden.		Springfield.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	74	47	75	49	79	45	75	48	73	49	76	43	74	41	75	59	64	55	69	43	65	50	61	50	72	52	77	61
2	84	47	85	45	79	47	80	42	81	50	85	47	81	40	80	41	72	44	76	38	73	42	69	45	70	46	78	43
3	83	48	87	52	80	46	86	47	84	52	87	54	82	42	87	40	82	32	81	40	81	48	78	50	80	38	84	37
4	86	46	87	51	80	45	87	51	83	53	85	52	84	43	82	44	80	38	84	45	82	51	79	54	80	43	88	48
5	72	47	79	61	81	50	79	59	78	54	80	47	78	46	84	49	79	38	71	48	80	55	74	57	81	53	85	47
6	80	48	85	65	80	52	81	62	84	56	85	48	81	41	72	54	71	41	80	49	75	55	72	55	70	49	77	52
7	72	50	79	64	80	50	83	63	69	54	73	62	75	54	84	56	80	56	76	53	77	58	76	60	81	56	82	51
8	65	44	75	55	79	47	71	51	54	49	58	47	61	35	85	59	63	57	56	50	70	57	63	53	64	56	80	61
9	62	43	68	51	80	49	60	50	65	42	70	44	68	35	65	55	61	49	68	50	61	53	64	53	61	55	68	59
10	74	48	75	56	60	49	74	55	74	58	76	61	75	58	78	52	74	53	74	54	74	54	71	53	76	52	79	50
11	76	60	77	66	60	40	78	64	77	57	82	51	70	45	79	59	74	62	69	55	70	60	71	59	74	58	76	58
12	75	63	75	64	55	40	77	60	74	60	74	56	69	47	81	58	66	60	68	50	71	65	69	53	76	55	79	54
13	60	43	71	65	58	40	74	64	67	40	46	44	50	35	82	55	75	54	76	50	74	54	71	58	78	56	80	51
14	49	40	70	44	58	38	71	43	50	33	54	31	49	28	72	62	71	60	50	47	69	54	61	39	75	62	78	63
15	44	31	64	41	50	35	61	40	61	38	44	36	40	32	62	49	60	37	61	32	55	40	54	34	65	52	76	61
16	44	26	67	37	50	29	65	35	43	29	47	27	45	24	68	47	61	44	40	33	60	36	58	28	67	42	71	59
17	50	26	53	29	70	29	43	27	47	29	54	32	52	22	52	30	43	28	44	23	50	25	39	23	47	31	60	33
18	59	28	61	27	53	32	56	27	55	31	57	30	60	28	51	28	48	20	54	22	49	18	50	23	45	25	48	28
19	62	30	69	41	51	30	67	35	62	38	65	35	69	33	62	30	64	32	66	25	64	35	64	40	58	32	61	28
20	70	36	75	56	67	29	73	50	72	53	69	42	75	31	69	47	66	42	69	43	65	43	66	46	67	43	70	44
21	45	41	81	65	68	33	81	62	59	41	45	44	55	37	76	47	72	48	69	44	70	54	70	55	72	58	76	61
22	46	34	77	39	45	33	73	36	43	33	48	34	43	31	72	45	66	56	37	37	65	37	64	33	70	40	76	57
23	60	28	61	31	56	31	56	31	57	32	60	31	67	28	51	37	43	31	53	33	46	30	48	33	45	33	58	39
24	69	30	69	40	68	32	64	37	65	41	67	37	77	35	69	32	54	27	65	35	53	31	58	37	52	28	60	29
25	64	36	71	46	68	44	68	43	67	49	67	51	65	38	70	33	68	36	67	41	67	35	66	41	62	31	68	30
26	59	43	73	58	78	44	71	58	73	59	64	51	72	56	72	38	69	38	75	42	71	46	69	53	67	37	72	34
27	50	21	72	60	54	45	74	53	71	62	69	49	72	60	76	42	71	41	75	54	70	45	70	53	72	45	76	42
28	74	38	76	61	55	35	78	57	66	45	58	41	63	33	75	40	75	41	76	57	74	43	71	53	74	47	80	39
29	67	39	78	57	49	35	75	53	65	55	55	40	43	34	60	41	51	44	63	46	63	43	66	44	63	41	75	39
30	54	50	69	55	50	35	66	53	61	44	49	45	55	38	65	47	51	45	63	46	50	47	51	46	58	38	69	48
Mns	64.3	40.4	73.5	51.1	64.7	39.6	71.6	48.5	66.0	46.2	65.0	43.5	65.0	38.3	71.9	45.9	65.8	43.6	65.8	42.8	66.5	45.5	64.8	46.0	67.4	45.1	73.6	46.9

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 7*—Continued.

Date	Tennessee.				Arkansas.																		Mississippi.					
	Memphis.		Union City.		Bentonville.		Corning.		Dardanelle.§§		Eldorado.§§		Fort Smith.		Little Rock.		Pine Bluff.§§		Texarkana.§§		Wynne.§§		Clarksdale.§§		Corinth.§§		Greenville.§§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	71	60	72	59	66	49	74	53	70	55	78	57	70	53	73	54	76	54	72	52	71	60	77	63	83	58	80	64
2	74	51	75	47	76	39	76	41	80	40	80	43	77	43	76	53	80	41	79	46	74	42	78	44	74	45	78	46
3	80	52	83	39	78	49	85	39	81	40	84	43	83	47	83	50	86	40	80	46	82	42	82	42	81	44	84	43
4	82	57	84	44	83	52	83	44	84	42	84	46	85	51	84	54	86	52	79	47	84	42	85	42	84	44	84	46
5	78	58	82	45	74	58	82	49	81	41	84	47	77	56	78	55	81	46	79	49	78	49	87	46	81	48	80	47
6	78	62	72	51	74	60	75	59	88	52	83	54	80	62	76	65	81	58	79	57	88	54	86	49	76	49	82	50
7	79	63	81	58	74	61	79	58	82	55	83	55	77	60	78	64	85	59	79	59	81	58	83	54	81	56	84	55
8	68	59	74	58	66	52	73	58	71	58	72	51	66	55	68	60	68	57	69	61	69	61	80	66	82	55	82	61
9	68	59	79	54	67	53	63	55	65	59	76	59	68	54	66	57	69	56	68	59	69	59	78	54	76	58	78	56
10	77	59	77	53	72	55	77	55	79	54	79	57	75	56	72	56	80	52	75	59	78	57	80	55	78	52	79	56
11	76	60	75	59	70	63	75	64	75	56	80	59	76	65	72	65	80	60	77	59	87	60	78	57	75	58	81	57
12	76	60	77	56	73	62	78	62	78	57	79	63	75	61	72	64	80	59	75	65	76	59	81	55	76	51	81	57
13	79	59	79	55	72	60	78	55	74	56	78	53	73	62	77	57	81	54	75	61	79	58	85	59	78	54	83	54
14	72	64	76	60	61	38	73	62	68	46	75	60	62	43	70	56	66	54	64	55	64	60	87	55	74	62	79	57
15	69	59	70	52	64	37	65	47	68	45	74	61	58	42	59	51	70	50	70	55	68	54	84	65	78	60	80	66
16	70	42	69	54	64	30	65	49	55	50	71	62	67	37	67	43	70	58	68	59	69	55	73	65	73	60	75	64
17	49	34	54	32	44	24	51	30	54	33	56	34	52	31	51	35	55	33	54	34	49	31	61	35	50	34	57	34
18	48	32	47	26	55	24	50	25	54	28	55	29	56	29	53	32	50	31	55	31	51	26	59	30	48	28	54	34
19	59	37	59	33	62	39	62	36	67	27	66	30	66	34	64	35	66	32	66	33	60	28	70	29	58	30	64	27
20	68	46	69	42	68	53	67	49	66	35	69	37	70	51	66	51	70	40	71	36	67	42	79	42	68	32	75	35
21	76	63	74	59	75	57	71	62	79	52	79	52	79	58	75	64	80	58	84	55	77	51	76	55	75	45	81	45
22	72	43	71	44	68	34	70	46	69	65	79	66	71	39	70	43	74	64	71	67	71	63	69	47	74	61	80	63
23	49	40	49	35	55	34	71	37	55	45	58	41	54	37	51	40	68	39	55	34	50	39	55	38	47	38	54	42
24	54	37	52	31	62	38	57	32	60	37	65	33	62	39	57	38	74	30	67	35	56	31	68	39	56	31	64	32
25	64	43	62	37	70	42	69	33	70	40	74	35	68	42	71	43	76	34	71	40	67	32	70	38	66	32	73	34
26	71	50	68	41	72	55	75	39	75	40	75	47	75	57	72	50	74	40	75	48	72	41	75	40	71	34	74	42
27	73	55	74	41	70	55	73	44	75	43	78	48	74	54	74	51	79	42	75	54	73	43	78	37	73	38	80	41
28	72	55	76	40	73	54	74	40	77	44	77	50	74	57	73	52	78	44	76	56	74	48	79	42	76	42	78	43
29	71	52	63	43	71	46	67	45	73	38	75	46	74	54	72	52	76	41	72	53	73	43	78	41	73	41	77	44
30	55	50	65	43	64	48	57	48	60	42	73	43	59	51	60	50	67	47	61	52	55	50	.....	43	.....	41	73	44
31																												
Mns	69.3	52.0	70.3	46.4	68.1	47.4	70.5	47.2	71.1	45.8	74.6	48.7	70.1	49.3	69.3	51.3	74.2	47.5	71.4	50.6	70.4	47.9	76.6[a]	47.4	72.1[a]	46.0	75.8	48.1

Date.	Mississippi.						Louisiana.																			
	Koseiusko.§§		Natches.§§		Vicksburg.		Alexandria.§§		Baton Rouge.§§		Covington.§§		Lafayette.§§		Lake Charles.§§		Monroe.§§		New Orleans.		Robeline.§§		Schriever.§§		Shreveport.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	81	64	86	65	81	64	84	64	86	64	85	56	84	67	81	60	87	55	83	67	87	59	87	57	77	57
2	77	45	79	53	79	54	80	45	82	63	84	66	78	56	82	54	84	47	79	66	86	45	86	57	79	51
3	81	38	85	47	79	51	85	41	85	51	83	43	84	44	86	49	86	45	78	61	85	42	89	56	82	50
4	84	39	85	47	81	57	86	42	86	52	84	43	85	45	85	45	85	46	79	60	85	41	87	57	82	52
5	81	42	82	53	77	55	82	43	83	50	82	45	82	48	83	45	85	47	76	62	84	42	84	58	80	53
5	79	42	85	55	78	59	85	47	85	57	84	46	84	50	84	45	87	47	81	64	86	44	87	54	82	60
7	81	48	85	59	81	60	84	57	86	54	84	53	83	55	85	50	83	55	82	66	84	47	91	55	79	59
8	81	52	86	63	80	62	86	62	83	61	82	54	86	58	83	50	82	62	81	66	85	41	88	59	76	61
9	66	54	84	62	76	61	81	56	85	55	84	54	83	56	79	50	80	60	78	63	80	49	90	60	69	58
10	78	53	83	61	78	57	82	55	82	60	82	55	82	55	82	50	82	59	80	64	79	50	86	59	76	57
11	76	53	85	60	79	59	82	56	85	56	81	56	83	58	84	50	83	58	79	65	85	48	85	57	79	62
12	76	53	84	61	79	58	80	62	79	63	82	54	81	62	82	50	85	60	78	63	81	49	87	58	76	62
13	78	54	85	59	80	57	80	60	75	60	80	54	80	61	83	50	81	52	78	65	82	48	88	61	78	60
14	75	54	81	62	77	65	84	60	69	64	75	56	79	63	84	50	78	58	77	69	79	51	89	59	62	58
15	79	60	82	67	78	66	80	66	70	60	82	62	82	65	80	53	83	65	80	66	80	47	86	57	76	62
16	77	61	80	65	76	53	80	63	75	62	76	64	85	65	79	50	75	66	75	64	77	50	81	54	75	43
17	53	38	57	41	55	40	60	41	60	47	62	51	59	46	69	43	63	38	69	51	58	37	75	50	55	37
18	50	32	57	36	55	36	60	32	55	36	62	32	61	34	63	37	60	33	58	46	72	25	72	38	56	34
19	62	25	69	35	63	35	69	27	64	33	68	29	68	30	71	31	71	30	64	45	76	33	81	34	66	36
20	73	25	76	36	72	46	72	28	70	40	78	30	77	36	76	32	72	31	77	55	79	38	83	49	72	48
21	78	46	83	50	79	64	82	42	82	52	81	45	82	52	80	45	83	43	81	61	82	37	87	50	81	64
22	78	65	81	64	78	48	80	63	80	62	84	53	83	60	79	49	81	66	81	63	80	35	83	52	79	40
23	50	41	59	44	56	43	61	38	61	49	70	47	63	40	70	40	61	44	64	51	76	39	86	51	59	35
24	61	30	67	39	63	40	67	37	68	44	69	36	71	38	76	40	73	35	62	45	80	37	82	51	64	39
25	68	32	78	40	71	47	76	37	78	47	76	36	78	38	78	41	75	37	71	52	68	41	86	32	74	48
26	71	38	75	44	73	52	77	37	71	48	72	37	74	42	79	45	68	36	72	53	78	32	84	35	75	54
27	75	39	82	51	77	53	81	46	80	53	82	42	81	46	81	45	84	45	77	55	78	38	85	35	78	54
28	73	41	82	55	76	53	81	50	79	59	79	45	80	52	82	50	82	46	76	60	80	50	87	36	78	57
29	73	38	81	52	76	54	80	52	72	53	79	46	79	52	81	50	81	48	72	54	79	46	89	36	74	55
30	70	39	81	48	75	52	.....	39	79	48	79	39	79	43	79	50	80	42	76	55	.....	36	88	40	71	51
31																										
Means	72.8	44.7	78.8	52.5	74.2	53.4	78.6[a]	48.3	76.5	53.4	78.4	47.6	78.5	50.6	79.5	46.6	78.7	48.5	75.5	59.2	79.7[a]	42.8	85.3	50.2	73.7	51.9

Climatological Data for November, 1909.
DISTRICT No. 8, TEXAS AND RIO GRANDE VALLEY.

BERNARD BUNNEMEYER, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

The weather during the month was unusually mild throughout the district, with considerable cloudiness, and precipitation approximating the normal for the district as a whole. The daily excess of temperature was exceptionally great in Texas, where it exceeded all previous records for the month. In New Mexico there have been but two Novembers in the past 15 years with a higher average temperature, while in Colorado there have been several, but only a few with so little severely cold weather.

The precipitation was unusually heavy in Colorado and decidedly deficient in New Mexico, the deficiency extending into Texas over the Rio Grande, Rio Pecos, and Nueces watersheds. In the remaining portions of Texas, except the extreme eastern, the precipitation averaged greater than the normal. A large number of localities in New Mexico, and a few in Texas, had either no precipitation or the amounts were too small to be measured. Most of the precipitation over the upper portions of the Rio Grande and Rio Pecos was in the form of snow, the greatest amount in Colorado being 32 inches. In New Mexico the snowfall ranged from 30 inches in northern to a trace in the more southern localities, the average for the month being much less than for the corresponding month of the previous year. There was practically no snow in the Texas portion of the district. An excessive 24-hour precipitation of 5.96 inches occurred at Columbus, of 4.69 inches at Alvin, and of 3.92 inches at Booth, Tex. These amounts were for the 24 hours ending at 7 a. m. November 1, although most of it fell on October 31. At five other stations in Texas the 24-hour rainfall equaled or exceeded 2.50 inches on other dates. The number of rainy days averaged about 3 for New Mexico and 5 for Colorado and Texas, the principal storm periods being from the 10th to the 17th and from the 26th to the 30th. In portions of Texas, however, precipitation occurred also on the 1st and from the 7th to the 10th.

The amount of sunshine averaged below the normal in Colorado, above the normal in New Mexico and west Texas, and very near normal in east Texas. Dense fogs occurred on several days in various localities, but these fogs were not so pronounced a feature of the weather as they were in October. Some of the rains in Texas and New Mexico were accompanied by thunderstorms.

TEMPERATURE.

The temperature was much above the normal throughout the district, the monthly average being 32.9° in Colorado, 44.7° in New Mexico, and 65.3° in Texas. The daily excess was greatest over a broad area extending from the lower Rio Grande Valley and lower Texas coast northeastward to the Red River and averaged about 9°. There was a marked but gradual decrease toward the northwestern limit of the district, a minimum daily excess of about 2° being reached in the extreme upper Rio Grande Valley. The first decade was exceptionally warm, with but little change from day to day, and the highest temperatures of the month occurred in nearly all localities during this period. During the second decade the temperature was much lower throughout the district, although the mean for this period was above the normal in portions of Texas. The daily changes were decidedly pronounced on several days. In the upper Rio Grande watershed readings considerably below zero were recorded, while freezing temperatures occurred well southeastward beyond the New Mexico border line. During the third decade comparatively mild temperatures prevailed, except in New Mexico from the 27th to the 30th and in western and northern Texas from the 29th to the 30th. Most of the colder weather was preceded or accompanied by precipitation.

The lowest temperature reported from Colorado was 23° below zero on the 18th at Wagon Wheel Gap; from New Mexico, 8° below zero on the 16th at Red River Canyon; and from Texas, 22° on the 18th at San Saba. The highest temperatures recorded were: In Colorado, 72° on the 3d at Wagon Wheel Gap; in New Mexico, 87° on the 4th at Carlsbad; and in Texas, 99° on the 3d at Tilden. The local monthly means ranged from 26.4° to 37.0° in Colorado, from 28.8° to 57.2° in New Mexico, and from 53.4° to 75.1° in Texas.

PRECIPITATION.

The precipitation over the Rio Grande watershed was greater than the normal in Colorado, the average being 1.50 inches, with an excess of 0.65 inch. The greatest monthly amount was 2.77 inches at Cumbres and the least, 0.39 inch at Blanca. In New Mexico there was a marked deficiency, except in the extreme upper portion, the average being 0.29 inch and the deficiency, 0.35 inch. The greatest amount was 1.90 inches at Red River Canyon and the least, 0.00 inch at 9 stations. In Texas the average was 0.69 inch, which is 0.59 inch less than the normal. The greatest amount was 1.60 inches at Comstock, and the least 0.00 inch at Llano Grande.

The least precipitation occurred over a large stretch from Terrell County, Tex., northward nearly to Santa Fe, N. Mex. Compared with the precipitation of the preceding month there was a considerable falling off in Colorado and New Mexico, and a decided gain in the lower portion of the watershed. Much of the precipitation over the upper watershed was in the form of snow, the greatest fall in Colorado being 32 inches at Cumbres, and in New Mexico, 30 inches at Red River Canyon. There was no snow over the Texas end.

In the Rio Pecos watershed the precipitation was also deficient, the greatest deficiency occurring from Mineral Hill, N. Mex., south nearly to the Texas border line. In the extreme lower portion of the valley there was a slight excess. The average over the New Mexico stretch was 0.38 inch, which was 0.75 inch less than the normal. The greatest amount was 1.79 inches at Harveys Upper Ranch, and the least, 0.00 inch at Pastura. In Texas the average was 0.75 inch, or slightly more than the normal. The greatest amount was 0.95 inch at Fort Stockton and the least, 0.55 inch at Barstow. Compared with the October precipitation there was a decided increase in the Texas portion and a decrease in that of New Mexico. There was no snow in Texas, except a trace at Barstow, but the amounts increased toward the north, the greatest being 21 inches at Harveys Upper Ranch, N. Mex.

Over the watersheds of the Nueces, San Antonio, and Guadalupe there was a general deficiency of precipitation, averaging nearly 0.50 inch. The Nueces had a slight excess in its upper portion and a marked deficiency in its lower. The average was 0.88 inch; the greatest, 1.90 inches at Hondo; and the least, a trace at Tilden. The San Antonio averaged 1.18 inches, with a maximum amount of 1.83 inches at Runge and a minimum of 0.53 inch at San Antonio. The Guadalupe averaged 2.40 inches, the precipitation being much less in the upper portion than in the lower and ranging from 0.94 inch at Blanco to 5.52 inches at Victoria. The precipitation over these 3 drainage basins was about one-third less than during October.

The Lavaca, Colorado, and Brazos watersheds had an increase of more than 0.50 inch over the precipitation of the preceding month. The average for the Lavaca was 5.42 inches and

heavier than that of any other watershed in the district. The average for the Colorado was 2.78 inches, with a maximum amount of 9.01 inches at Columbus and a minimum of 0.99 inch at Ballinger. While the excess over this watershed averaged 0.48 inch, there were several short stretches from Ballinger to Austin in which there was a deficiency. The average for the Brazos was 3.48 inches, or 0.63 inch more than the normal. The heaviest amount was 5.54 inches at Booth and the least, 0.79 inch at Hempstead. There was a general and marked excess over the upper portion southward to Kopperl, but below that station deficiencies occurred in many localities.

The precipitation over the Trinity watershed averaged 2.55 inches or very nearly normal and was about 0.60 inch less than during the preceding month. There was a general excess in the upper portions and a deficiency south of Corsicana. Heavy amounts, of 5.60 and 5.11 inches, occurred at Bowie and Fort Worth, respectively.

The Neches and Sabine watersheds showed a decided falling off, the average precipitation being about 1 inch less than received during October. The average for the Neches was 1.95 inches, with a maximum amount of 2.89 inches at Henderson and a minimum of 0.79 inch at Carmona. The average for the Sabine was 2.40 inches, the greatest amount being 2.94 inches at Wills Point and the least, 1.94 inches at Marshall.

RIVER CONDITIONS.

The volume of water discharged by the rivers of the district was generally less than during the preceding month, the only exception being the Brazos which averaged a slightly greater volume. The Rio Grande was abnormally low, although there was generally sufficient water for irrigation and for stock. At Eagle Pass, Tex., it fell gradually during the entire month, attaining the lowest stage on the last day, and it has not been so low at this season for many years. At Zapata, Tex., the river was very nearly normal, while at Llano Grande, farther below, it averaged 2 feet lower than during the preceding month.

All Texas rivers, save the Brazos, either had a slight falling off or showed no perceptible change from the October condition. The average stage of the Brazos at Kopperl was the highest on record for November for the last 7 years, while the stages of the Trinity at Long Lake and Riverside were the lowest. The Sabine also has never been lower during any previous November since 1903, and in some of its upper portions the river bed was dry during part of the month. At the close of the month there was a general rise in the upper portions of these rivers.

MISCELLANEOUS.

The insufficient precipitation in New Mexico during the early part of the month caused much apprehension. The situation was relieved, however, in the northern half of the Territory by the storm of the 27th to 30th.

On the 9th a waterspout was observed at Palacios, Tex., moving across Tres Palacios Bay in an easterly direction. It is estimated that the height of the spout approximated 1,000 feet, with a diameter of about 8 feet. No damage was done.

On the 17th and 18th freezing temperatures occurred throughout nearly the entire northwest half of Texas, while killing frosts occurred to within about 100 miles of the coast, and light frosts nearly to the coast line. This was the first frost of importance in many localities in the southeast portion of the district.

IRRIGATION IN TEXAS.

Under the act of the 30th legislature of the State of Texas, approved March 23, 1907, to which reference was made in the October report, and which is entitled:

An act to authorize the commissioners courts of the several counties of Texas to create and establish drainage districts, to construct canals, drains and ditches, to make levees, improve streams and water courses and make other improvements for the purpose of drainage; to order and hold elections for the purpose of voting on drainage propositions, and authorizing the issuance of bonds and levy of tax, and to issue bonds in payment for such drainage improvements and the maintenance thereof, and to levy and collect taxes for the payment of such bonds, to appoint drainage commissioners and all other necessary officers of such drainage districts for the purpose of carrying into effect the provisions of this act: granting the right of eminent domain to such drainage districts and authorizing the drainage commissioners to acquire by purchase, gift or grant, for such district, title to any right of way and other property and generally authorizing the county commissioners court and the drainage commissioners to do all things necessary for the establishing and maintenance of such districts according to the provisions of the act; repealing all laws or parts of laws in conflict herewith and declaring an emergency.

The following drainage districts were organized and bonds issued:

Matagorda County Drainage District No. 1. Bonds issued, $250,000.

Angleton (Brazoria County) Drainage District. Bonds issued, $120,000.

Barstow (Ward County) Drainage District. Bonds issued, $50,000.

Grandfalls (Ward County) Drainage District. Bonds issued, $33,000.

Velasco (Brazoria County) Drainage District. Bonds issued, $50,000.

Ellis County Drainage District No. 1. Bonds issued, $35,000.

Harris County Drainage District No. 1. Bonds issued, $60,000.

Galveston County Drainage District No. 1. Bonds issued, $116,000.

Harris County Drainage District No. 2. Bonds issued, $200,000.

The first four districts were organized in 1908, and the remaining five in 1909. It was the duty of the attorney-general of the State to approve the bond issue, but as the act was found to be defective he announced that no further bond issues would be approved under it. This ended activities for the time being, but as the 31st legislature amended the defective law, it is expected that there will soon be a considerable extension of the irrigated area by the organization of other districts.

TABLE 1.—*Climatological data for November, 1909. District No. 8, Texas and Rio Grande Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Colorado.																				
Amethyst (near)	Mineral	8,730	1																	Don C. La Font.
Blanca	Costilla	8,403	....	34.1		66	3	− 4	17	54	0.39		0.26	9.0	4	12	15	3	sw.	L. C. Audrain.
Cumbres	Conejos	10,015	3								2.77		0.62	32.0	8					Venita A. Good.
Garnett	Costilla	7,576	16	32.3	+ 2.7	67	3	− 7	17	50	0.69	+ 0.39	0.27	11.0	4	14	8	8		Chas. Speiser.
Hermit	Hinsdale	9,843	....								2.32		0.66	28.0	7	14	7	9		C. C. Mason.
La Veta Pass	Costilla	9,000	....								2.43		0.70	31.9	5	17	8	5	w.	Norvin R. Lively.
Manassa	Conejos	7,700	3	34.6°		68°	3	3°	16	50°										J. B. Chapman.
Platoro	do	9,675	2								3.81		1.16	56.9	11	15	7	8	w.	Walter R. Hook.
Saguache	Saguache	7,740	17	37.0	+ 4.1	70	2†	0	18	48	0.81	+ 0.59	0.42	14.0	5	20	6	4	w.	Eugene Williams.
San Luis	Costilla	7,794	18	35.2	+ 1.5	72	3	− 7	17	55	0.94	+ 0.55	0.41	9.4	6	17	9	4	sw.	P. B. Albright.
Wagon Wheel Gap	Mineral	8,434	10	26.4	− 0.4	72	3	−23	18	64	1.92	+ 0.98	1.33	23.0	2	17	9	4	w.	Ellwood Bergey.
New Mexico.																				
Agricultural College	Dona Ana	3,863	43	52.2	+ 2.7	82	4†	20	28†	46	0.00	− 0.57	0.00	0.0	0	24	6	0	w.	N. M. Agric. College.
Alamogordo (near)	Otero	4,338	9			82°	5†	28°	29	46°	T.		T.	T.	0				w.	Jas. C. Dunn.
Alamogordo	do	4,320	....								0.02		0.02	0.0	1					Agent E. P. & S. W. R. R.
Albuquerque	Bernalillo	5,200	32	51.2		78	5†	25	17	45	0.25	− 0.25	0.22	3.2	3	23	1	6	s.	University of N. M.
Amizett	Taos	9,018	....								1.85		1.00	22.3	9	11	7	12	w.	Geo. W. Oates.
Ancho	Lincoln	6,112	....								0.01		0.01	T.	1	22	1	7	w.	Agent E. P. &S. W. R. R.
Aspen Grove Ranch	Rio Arriba	9,000	....								0.79		0.48	11.0	6	18	0	12		Junius D. Maupin.
Bateman Ranch	do	8,900	....								0.45		0.20	6.9	4	16	6	8	w.	John W. Bateman.
Bluewater	Valencia	6,732	8	38.6		73	5	7	17	56	0.15		0.15	1.5	1	16	4	10	n.	Bluewater Developm't Co
Bluewater Reservoir	do	9,000	....								0.42		0.42	4.0	1	24	1	5		Do.
Boaz	Chaves	4,154	....	50.4		80	4	12	30	47	1.28		0.73	6.0	3	22	4	4	w.	D. C. Savage.
Capitan	Lincoln	6,348	....								T.		T.	T.	0	25	0	5	w.	Agent E. P. & S. W. R. R.
Carlsbad	Eddy	3,120	15	57.2		87	4	24	17	51	0.38		0.16	1.6	4	2	25	3	se.	U. S. Reclamation Serv.
Carrizozo (1)	Lincoln	5,429	2																	A. H. Harvey.
Carrizozo (2)	do	5,438	....								0.00		0.00	0.0	0					Agent E. P. & S. W. R. R.
Chama	Rio Arriba	7,851	8	36.4		70	3	2	16	43	1.32		0.24	12.5	6	17	7	6	sw.	Frank C. Johnson.
Clouderoft (1)	Otero	8,650	7	38.4		62	1	17	16	32	0.20		0.20	2.0	1	12	14	4	sw.	M. P. Coakly.
Clouderoft (2)	do	8,650	....																	Agent E. P. & S. W. R. R.
Corona	Lincoln	6,666	....								0.25		0.25	2.0	1	27	0	3	n.	Do.
Coyote	do	5,800	....								0.10		0.10	0.0	1	20	0	10	sw.	Do.
Cundiyo	Santa Fe	6,889	....								0.32		0.25	3.6	4	18	3	9	w.	Teofilo Vijil.
Demonstration Farm	San Miguel	6,800	1								0.18		0.18	3.0	1					Erb and Westerman.
Duran (1)	Torrance	6,272	1	52.2		86	2	22	11	56	0.15		0.15	1.5	1	18	9	3	sw.	W. H. Birkhead.
Duran (2)	do	6,272	....								0.09		0.09	1.0	1	22	2	6		Agent E. P. & S. W. R. R.
Edison Mine	Taos	10,600	....																	Frank L. Paxton.
Elk (near)	Chaves		10					21	17		0.15	− 0.92	0.15	2.0	1	26	2	2	sw.	Boyd Williams.
Escondido	Otero	4,014	....								T.		T.	0.0	0	22	5	3	w.	Agent E. P. & S. W. R. R.
Española	Rio Arriba	5,590	13	42.2°	+ 2.6	73°	5	7°	16†	50°	0.09	− 0.66	0.09	1.5	1	20	3	7	w.	Mrs. E. F. McBride.
Estancia	Torrance	6,140	4			78°	25	12°	30	55°	0.10		0.10	1.0	1				e.	Agent N. M. Cent. R. R.
Fort Stanton	Lincoln	6,231	30	45.6	+ 3.9	77	25	13	17	53	T.	− 0.84	T.	T.	0	21	5	4	sw.	U. S. Sanitarium.
Fort Sumner	Guadalupe	3,960	7																	F. A. Manzonares.
Gallinas	Lincoln	6,635	....								0.16		0.08	1.0	2	25	0	5	w.	Agent E. P. & S. W. R. R.
Gallinas Planting Stat'n	San Miguel	7,500	3	42.8		72	2	9	29	43	0.97		0.84	5.7	3	6	22	2	sw.	U. S. Forest Service.
Harvey's Upper Ranch	do	9,400	....								1.79		0.96	21.0	4	9	13	8	se.	Simon B. Warner.
Hillsboro	Sierra	5,224	10	51.2	+ 4.3	78	5	23	30	39	0.00	− 0.70	0.00	0.0	0	27	3	0	w.	J. M. Webster.
Hodges	Tacs	8,484	....								0.53		0.25	5.0	5	16	6	14	nw.	Ralph W. Johnson.
Hondo Reservoir	Chaves	3,904	1	53.2		84	4	15	18	54	0.04		0.04	T.	1	19	7	4	se.	U. S. Reclamation Serv.
Hope	Eddy		3																	N. L. Johnson.
Hopewell	Rio Arriba	9,500	....	28.8		57	3	4	16	37	0.98		0.31	17.3	7	9	11	10	w.	John T. Blanton.
Laguna	Valencia	5,840	5	44.2		76	1	11	16	47	0.45		0.45	5.0	1				w.	Gus Weiss.
Lagunita	Guadalupe	4,500	5																	P. A. Turnbull.
La Huerta	Eddy	3,111	1								0.37		0.14	0.0	4	18	9	3	se.	D. Barclay Sutherland.
Lake Valley	Sierra	5,415	5								0.06		0.06	T.	1	17	13	0	sw.	Wm. P. Keil.
Las Vegas	San Miguel	6,384	23	44.6	+ 4.0	75	4	14	16	52	0.19	− 0.63	0.11	2.1	2	18	10	2	s.	Dr. Wm. C. Bailey.
Los Lunas (near)	Valencia	4,900	18	43.5	+ 2.0	74	5	13	18	55	T.	− 0.37	T.	0.0	0	18	7	5		Richard Pohl.
Los Tanos	Guadalupe	4,919	....								0.25		0.25	2.5	1	20	3	7	w.	Agent E. P. & S. W. R. R.
Magdalena	Socorro	6,557	4	43.4		78	4	11	17	43	0.30		0.20	1.5	2	17	9	4	w.	Wm. Pender.
Mineral Hill	San Miguel	7,050	5								0.50		0.50	4.0	1	18	2	10	sw.	W. M. Nelson.
Monument	Eddy	3,500	4																	James M. Cook.
Mountainair	Torrance	6,547	7	43.6		75	6	16	28†	42	T.		T.	T.	0	20	7	3	sw.	John W. Corbett.
Newman	Otero	3,989	....								T.		T.	0.0	0	24	6	0	sw.	Agent E. P. & S. W. R. R.
Noria	Dona Ana	4,414	....								0.08		0.08	0.0	1	26	2	2	nw.	Do.
Orogrande	Otero	4,171	....								0.00		0.00	0.0	0	21	6	3	w.	Do.
Oscuro (near)	Lincoln	5,016	....								0.01		0.01	0.0	1					Eugene F. Jones.
Oscuro (2)	do	5,016	....								0.00		0.00	0.0	0				s.	Agent E. P. & S. W. R. R.
Otis	Eddy	3,100	....								0.73		0.38	0.0	4					A. M. Hove.
Otto	Santa Fe	6,200	....								0.20		0.20	3.0	1					Otto Goetz.
Pastura	Guadalupe	5,285	....								0.00		0.00	0.0	0					Agent E. P. & S. W. R. R.
Red River	Taos	8,650	....	32.6		63	3	− 8	16	44	1.90		0.84	30.0	5	17	11	2	e.	Mrs. L. R. Penn.
Rincon	Dona Ana	4,030	11	52.4	+ 3.6	84	4†	19	17†	52	0.00	− 0.41	0.00	0.0	0	19	6	5	s.	Chas. H. Raitt.
Rio Grande Dam	Sierra	4,265	11	51.8	+ 6.2	84	4†	20	17	47	T.	− 0.29	T.	T.	0	22	2	6	sw.	U. S. Reclamation Serv.
Rosedale	Socorro	6,910	5	45.0		69	4†	17	16	34	0.23		0.10	2.0	4	22	2	6	w.	W. H. Martin.
Roswell	Chaves	3,578	12	52.0	+ 3.9	83	4	18	18	51	0.29	− 0.87	0.18	T.	4	16	10	4	se.	U. S. Weather Bureau.
San Marcial	Socorro	4,439	14	48.6	+ 1.8	77	6†	18	18	47	0.00	− 0.54	0.00	0.0	0	20	7	3	sw.	Agent A. T. & S. F. R. R.
San Rafael	Valencia	6,509	6	47.8		80	5†	15	18	55	0.50	− 0.08	0.40	4.0	3	13	9	8	sw.	Dr. C. M. Grover.
Santa Fe	Santa Fe	7,013	37	41.0	+ 2.8	66	2	15	30	33	1.02	+ 0.24	0.94	13.7	3	17	11	2	ne.	Section Center.
Santa Rosa (1)	Guadalupe	4,624	10	51.2		80	3†	19	17	51	0.22		0.22	2.5	1	19	10	1	w.	John L. Chapman.
Santa Rosa (2)	do	4,624	....								0.20		0.20	2.0	1					Agent E. P. & S. W. R. R.
Socorro	Socorro	4,600	19	49.0°	+ 3.6	80°	5†	15°	18	49°	0.00	− 0.60	0.00	0.0	0	21	7	3	n.	J. J. Leeson.
Stanley (near)	Santa Fe	6,317	....	40.3°		73°	2†	8°	30	56°	0.24		0.24	3.5	1	23	3	4	sw.	L. J. Cartwright.
Strauss	Dona Ana	4,080	11								T.	− 0.67	T.	0.0	0	20	8	2	nw.	Agent Southern Pac. R.R.
Taos	Taos	6,983	12	39.5	+ 1.2	70	2†	12	17†	46	0.71	+ 0.05	0.33	6.0	4	18	10	2	sw.	Alexander Gusdorf.
Taos Canyon	do	8,959	....								1.32		0.71		7					Leocadio Martinez, jr.
Tecolote	Lincoln	6,539	....								0.11		0.09	0.5	2	22	5	3	w.	Agent E. P. & S. W. R. R
Three Rivers	Otero	4,559	....								T.		T.	T.	0	22	0	8		Do.
Torrance	Torrance	6,433	....								0.20		0.20	2.0	1					Do.
Tres Piedras	Taos	8,076	5	35.4		68	2	0	17	46	0.95		0.40	13.0	4	17	9	4	sw.	Edwin B. Seward.
Truchos	Rio Arriba	7,935	....	40.4		74	3	11	15	35	0.35		0.20	5.0	2	9	21	0		Ignacio Cordova.
Tularosa (1)	Otero	4,436	2	53.8		82	6	23	29	41	0.03		0.01	T.	3	18	11	1	sw.	Irby L. Fairless.
Tularosa (2)	do	4,436	....								0.00		0.00	0.0	0	25	4	1	sw.	Agent E. P. & S. W. R. R.
Vaughn	Guadalupe										0.20		0.20	2.0	1	23	1	6	sw.	Do.
Winsors	San Miguel	8,200	12	37.0	+ 2.8	65	2†	0	29	47	0.88	− 0.48	0.51	10.5	4	9	11	1	w.	Henry D. Winsor.
Texas.																				
Abilene	Taylor	1,738	24	60.8	+ 8.2	84	5	32	17	33	1.96	+ 0.72	0.88	0.0	5	9	15	6	s.	U. S. Weather Bureau.
Albany	Shackleford	1,429	15	59.4	+ 6.4	90	5	29	17	44	4.50	+ 2.98	2.66	0.0	4					N. L. Bartholomew.

TABLE 1.—*Climatological data for November, 1909. District No. 8*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Texas—Cont'd.																				
Alvin	Brazoria	49	10	.....	.....	.....	.....	.....	.....	.....	9.49	+ 5.75	4.69	0.0	7	9	12	9	ne.	F. A. Smith.
Anahuac‖	Chambers	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.71	.....	1.31	0.0	6	.....	.....	.....	.....	B. H. Collins.
Austin	Travis	650	23	65.9	+ 6.8	82	11	38	18	27	1.84	− 0.59	1.35	0.0	7	10	14	6	e.	A. Deussen.
Ballinger§§	Runnels	1,637	14	60.8	+ 6.5	86[a]	5	27	17†	41[a]	0.99	− 0.36	0.65	0.0	3	12	6	12	s.	E. M. Eubank.
Barstow	Ward	2,573	2	59.8	.....	96	10	24	18	60	0.55	.....	0.25	T.	3	26	0	4	se.	W. H. Denis.
Beaumont	Jefferson	29	12	67.2	.....	87	7†	38	18	40	2.87	− 1.16	0.98	0.0	7	12	0	18	se.	Jno. Bender.
Beeville§§	Bee	225	13	71.4	+ 8.3	88	5†	41	18	38	3.09	+ 0.90	1.55	0.0	7	7	17	6	e.	L. E. Dickey.
Big Springs	Howard	2,396	7	60.0	.....	90	5	27	17	46	4.01	.....	2.52	0.0	5	14	11	5	s.	B. Reagan.
Blanco§§	Blanco	1,350	13	65.4	+ 7.1	86	28	26	18	43	0.94	− 1.43	0.54	0.0	4	9	19	2	s.	R. C. Crist.
Boerne	Kendall	1,412	17	64.0	+ 3.5	87	2	26	17	52	2.95	+ 0.22	1.90	0.0	4	3	17	10	s.	F. W. Schweppe.
Booth§§	Fort Bend	81	8	.....	.....	.....	.....	.....	.....	.....	5.54	.....	3.92	0.0	7	16	0	14	e.	T. R. Booth.
Boquillas	Brewster	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. A. Ernst.
Bowie	Montague	1,113	9	62.9	+ 8.9	89	5	30	17	36	5.60	.....	2.42	0.0	6	13	9	8	s.	Craig Anderson.
Brazoria	Brazoria	25	20	69.7	+ 7.6	90	1	38	19	41	3.74	− 0.16	1.21	0.0	10	16	9	5	s.	Mrs. M. A. Stephens.
Brazos	Palo Pinto	801	.....	.....	.....	.....	.....	.....	.....	.....	3.92	.....	2.58	0.0	4	16	4	10	sw.	Robt. E. Boyett.
Brenham§§	Washington	350	20	67.2	+ 6.8	85	5	37	18	32	4.11	− 0.05	1.76	0.0	9	11	10	9	se.	Mrs. B. F. Sloan.
Bridgeport§§	Wise	754	.....	.....	.....	.....	.....	.....	.....	.....	0.26	.....	0.13	0.0	3	18	0	12	s.	Thos. C. West.
Brighton	Nueces	12	13	74.2	+ 8.1	88	9	50	17†	30	1.37	− 1.09	1.00	0.0	4	.....	.....	.....	se.	G. H. Ritter.
Brownsville	Cameron	38	20	74.6	+ 8.6	94	1	54	18	25	0.58	− 1.61	0.18	0.0	7	.....	.....	.....	s.	U. S. Weather Bureau.
Brownwood§§	Brown	1,342	19	60.8	+ 6.0	88	5	27	18†	47	2.54	+ 1.00	1.05	0.0	5	12	15	3	s.	Mrs. Pearl Smith.
Cameron§§	Milam	.....	1	66.3[a]	.....	88[a]	12	32	18†	41[a]	1.09	.....	0.62	0.0	4	20	10	0	s.	J. E. Watts.
Carmona	Polk	.....	1	65.6	.....	85	3	28	18†	42	0.79	.....	0.24	0.0	8	14	14	2	s.	G. S. Warner.
Claytonville	Fisher	2,100	5	56.8	.....	81	20†	26	17	41	4.18	.....	2.17	0.0	4	13[c]	3[c]	9[c]	s.	Wm. Lanius.
Coleman	Coleman	1,710	15	64.7[b]	+ 9.1	90[b]	21	29[b]	18	44[c]	2.57	+ 1.35	1.18	0.0	7	19[a]	8[a]	2[a]	s.	J. H. Tucker.
Coleman	Mitchell	2,066	15	.....	.....	.....	.....	.....	.....	.....	4.58	+ 3.62	.....	0.0	5	.....	.....	.....	s.	R. M. Webb.
Colorado	Mitchell	34	20	69.0	+ 7.7	92	22	37	18	32	3.28	− 0.59	0.80	0.0	8	16	12	2	s.	R. B. Loggins.
Columbia	Brazoria	206	5	.....	.....	.....	.....	.....	.....	.....	9.01	.....	5.96	0.0	6	10	9	11	se.	Mrs. Sophie Bridge.
Columbus§§	Colorado	.....	.....	64.6	.....	84	1†	34	17	30	1.60	.....	1.48	0.0	2	14	12	4	se.	A. D. Brown.
Comstock	Valverde	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Corpus Christi	Nueces	20	22	71.2	+ 7.8	89	22	46	18	26	0.53	− 1.88	0.31	0.0	9	7	21	2	se.	U. S. Weather Bureau.
Corsicana§§	Navarro	445	20	65.5	+ 5.3	84	6†	34	18†	42	1.49	− 1.84	0.57	0.0	6	12	8	10	se.	E. L. Gibson.
Crockett	Houston	350	5	66.3	.....	90	12	32	18	36	3.89	.....	2.25	0.0	7	10	15	5	s.	A. M. Bencher.
Cuero§§	DeWitt	177	20	70.2	+ 8.5	91	8†	34	18	46	2.19	− 0.73	0.52	0.0	8	10	0	20	s.	H. R. Forbese.
Dallas§§	Dallas	466	20	61.4	+ 6.7	88	2	30	18	46	1.91	− 0.76	0.85	0.0	5	13	2	15	s.	G. A. Eisenlohr.
Danevang	Wharton	145	13	71.9	+ 9.4	86	5†	50	23	26	3.70	− 0.28	1.30	0.0	6	13	7	10	se.	H. P. Hermansen.
Decatur	Wise	1,047	3	.....	.....	.....	.....	39	14	.....	5.10	.....	2.00	0.0	3	19	8	3	.....	Agent Ft. W. & D. C. Ry.
Del Rio	Valverde	952	3	65.2	+ 5.9	88	1	36	18	42	0.40	− 1.38	0.10	0.0	6	11	15	4	se.	U. S. Weather Bureau.
Dialville	Cherokee	575	11	64.2	.....	84	3	33	18	37	2.05	.....	1.35	0.0	5	14	10	6	s.	J. M. B. McKnight.
Dublin§§	Erath	1,466	14	62.2	+ 7.6	84	11†	34	23	31	3.20	+ 1.21	2.10	0.0	7	10	6	14	s.	Jno. O. Shafer.
Duval	Travis	820	20	65.5	+ 5.7	82	4†	36	18	31	2.00	+ 0.55	1.21	0.0	4	18	0	12	se.	J. C. Edgar.
Eagle Pass	Maverick	800	20	67.8	+ 6.8	96	3†	38	19	40	0.64	+ 0.48	0.50	0.0	2	0	30	0	.....	Jos. Metcalfe.
Edna	Jackson	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.42	.....	1.50	0.0	8	.....	.....	.....	.....	E. L. Faires.
El Paso	El Paso	3,762	30	56.2	+ 5.3	81	6	25	30	36	T.	− 0.59	T.	0.0	0	21	8	1	nw.	U. S. Weather Bureau.
Encinal	La Salle	.....	1	72.0[c]	.....	92[c]	5	41[c]	19	40[c]	.....	.....	.....	.....	.....	11[c]	4[c]	10[c]	c.	H C Braden.
Fairland	Burnet	.....	.....	66.6	.....	86	1†	29	18	44	2.66	.....	1.55	0.0	4	17	10	3	s.	R L. Bush.
Falfurrias	Starr	.....	2	73.0	.....	96	1	47	19	37	0.58	.....	0.34	0.0	3	19	2	9	se.	W.A. Gardner.
Flatonia	Fayette	465	1	68.4	.....	86	5†	35	18	31	2.64	.....	0.81	0.0	8	11	10	9	s.	Julius Laux.
Fort Clark §§	Kinney	1,050	22	63.8	+ 3.5	87	3†	35	17	47	1.47	+ 0.04	1.00	0.0	3	8	15	7	se.	Post Surgeon.
Fort McIntosh	Webb	460	23	74.7	+12.0	94	13	48	19	35	0.54	− 0.48	0.54	0.0	1	21	0	9	e.	Do.
Fort Stockton	Pecos	3,050	4	61.8	.....	90	5†	27	17	44	0.95	.....	0.45	0.0	3	13	15	2	se.	H. H. Butz.
Fort Worth	Tarrant	670	14	63.2	+ 8.1	85	3	33	18	37	5.11	+ 3.54	2.33	0.0	10	12	12	6	s.	U. S. Weather Bureau.
Fredericksburg	Gillespie	1,742	20	63.8[b]	+ 8.2	81[b]	2†	30[b]	18	41[b]	2.19	− 0.51	1.66	0.0	3	10	14	6	s.	Arthur Striegler.
Gainesville	Cooke	738	20	61.6	+ 7.6	86	3	29	18	43	3.76	+ 1.60	1.95	0.0	8	.....	.....	.....	.....	J. L. Hickson.
Galveston	Galveston	60	39	70.3	+ 7.4	79	5	48	18	20	1.89	− 2.13	1.26	0.0	5	12	17	1	se.	U. S. Weather Bureau.
Gatesville	Coryell	795	5	63.6	.....	89	1	30	18	46	2.70	.....	1.00	0.0	3	15	13	2	.....	John Ryan.
Georgetown§§	Williamson	750	14	64.1	+ 6.4	88	11	30	18†	41	3.73	+ 0.75	2.80	0.0	6	15	14	1	s.	Prof. R. E. Young.
Gonzales§§	Gonzales	299	4	.....	.....	.....	.....	.....	.....	.....	3.64	.....	2.00	0.0	4	11	3	16	s.	J. M. Johnson.
Graham	Young	1,040	5	57.2[c]	.....	93	5	24[a]	18	58[a]	4.62	.....	1.47	0.0	6	19	4	7	s.	C. W. Johnson.
Grandfalls	Ward	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. C. Bridwell.
Grapevine	Tarrant	670	19	63.4[b]	+ 7.6	88[b]	4	32[b]	18	44[b]	3.57[b]	+ 0.81	1.45[b]	0.0	4[b]	10[b]	12[b]	6[b]	s.	W. J. Crowley.
Greenville§§	Hunt	550	9	62.2	.....	85	3	34	17†	39	2.40	.....	0.65	0.0	7	12	0	18	s.	J. P. Regan.
Hallettsville	Lavaca	235	18	69.4	+ 8.1	85	1†	40	18	33	5.42	.....	2.10	0.0	8	11	9	10	s.	Dr. J. E. Lay.
Haskell	Haskell	4,013	18	58.4	+ 7.6	89	10	30	17†	44	3.04	+ 1.68	1.87	0.0	5	15	7	8	sw.	P. D. Saunders.
Hebbronville	Duval	.....	2	.....	.....	.....	.....	.....	.....	.....	0.30	.....	0.30	0.0	1	.....	.....	.....	.....	Henry Edds.
Hempstead§§	Waller	254	5	.....	.....	.....	.....	.....	.....	.....	0.79	.....	0.30	0.0	3	.....	.....	.....	se.	J. H. Hancock.
Henderson	Rusk	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.89	.....	1.42	0.0	7	10	11	9	.....	M. Kangerga.
Hewitt	McLennan	664	14	.....	.....	.....	.....	.....	.....	.....	3.55	+ 1.01	2.32	0.0	6	.....	.....	.....	.....	I. H. Earle.
Hillsboro	Hill	628	17	63.9	.....	88	1	29	19	43	2.18	.....	1.83	0.0	3	.....	.....	.....	.....	Thompson & Campbell.
Hondo	Medina	901	7	66.1	.....	88	1†	36	18	38	1.90	.....	1.75	0.0	2	4	17	9	.....	H. E. Haas.
Houston§§	Harris	53	20	67.8	+ 7.2	84	1	38	18	29	2.68	− 1.37	0.95	0.0	8	7	10	13	se.	U. S. Weather Bureau.
Hubbard	Hill	638	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. C. Mecklin.
Huntsville§§	Walker	400	21	64.6	+ 5.7	83	21	33	18†	35	2.11	− 2.05	0.71	0.0	5	7	0	23	se.	W. Y. Barr.
Jewett§§	Leon	496	5	64.5	.....	87	12	30	23	41	1.71	.....	0.67	0.0	5	22	3	5	s.	Earle Adkisson.
Junction	Kimble	1,645	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. T. Rowsey.
Kaufman	Kaufman	448	10	63.6	+ 6.1	82	6	34	17†	32	1.60	.....	0.60	0.0	6	11	12	7	s.	B. J. Hubbard.
Keene	Johnson	.....	.....	63.1	.....	84	21	33	23	32	3.75	.....	1.30	0.0	8	14	4	12	.....	Industrial Academy.
Kerrville§§	Kerr	1,650	14	65.0	+ 9.0	85	1	29	18	47	1.29	− 1.89	0.89	0.0	4	8	8	14	.....	Mrs. F. Coleman.
Knickerbocker	Tom Green	2,050	5	61.5	.....	86	5	25	17	46	1.48	.....	0.75	0.0	6	14	14	2	s.	Jos. Tweedy.
Kopperl	Bosque	576	9	.....	.....	.....	.....	.....	.....	.....	4.84	.....	2.24	0.0	3	6	9	15	s.	T. A. Johnson.
Lampasas§§	Lampasas	1,026	18	63.6	+ 8.0	87	3	26	18	51	1.23	− 1.01	0.84	0.0	4	11	13	6	s.	Mrs. K. I. Webber.
La Parra	Cameron	38	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jno. G. Kenedy.
Laureles Ranch	Nueces	20	10	.....	.....	.....	.....	.....	.....	.....	1.72	.....	1.03	0.0	3	.....	.....	.....	.....	Matt Cody.
Liberty§§	Liberty	38	5	67.8	.....	84	7†	39	23	37	2.51	.....	0.74	0.0	7	9	17	4	n.	Mrs. Fannie Sneed.
Llano	Llano	1,040	18	65.6	+ 7.9	86	1	26	18	42	1.07	− 0.46	1.01	0.0	2	24	5	1	e.	E. W. Torrence.
Llano Grande	Hidalgo	.....	1	68.9	.....	89	15†	44	19	33	0.00	.....	0.00	0.0	0	24	5	1	se.	M. D.Wardlow.
Long Lake§§	Anderson	.....	4	.....	.....	.....	.....	.....	.....	.....	1.48	.....	0.88	0.0	5	9	6	15	se.	Geo. Ellis
Longview§§	Gregg	336	20	62.0	+ 6.2	87	4	33	18†	43	2.30	− 2.07	0.80	0.0	7	13	3	14	se.	C. A. Propst.
Lufkin	Angelina	325	2	65.3	.....	86	5	30	19	42	1.87	.....	0.88	0.0	6	19	6	5	s.	T. A. King.
Luling§§	Caldwell	418	20	67.0	+ 7.4	84	5†	35	18	36	1.29	− 1.17	0.88	0.0	6	6	3	21	s.	John Carter.
Marble Falls§§	Burnet	771	1	.....	.....	.....	.....	.....	.....	.....	2.04	.....	1.14	0.0	3	8	1	21	sw.	Wm. Harrison.
Marfa	Presidio	.....	1	.....	.....	.....	.....	.....	.....	.....	0.40	.....	0.30	0.0	2	.....	.....	.....	.....	R. K. Colquitt.
Marshall	Harrison	375	.....	63.7[b]	.....	87[c]	22	29	18	40[c]	1.94	.....	0.80	0.0	6	5	20	5	s.	Lee Scott.
Mexia§§	Limestone	537	5	63.4	.....	84	3†	33	18	50	2.28	.....	1.30	0.0	4	6	14	10	s.	Miss Josephine Newman.
Midland	Midland	.....	.....	.....	.....	80	3	.....	.....	.....	1.48	.....	1.00	0.0	3	17	11	2	sw.	H. J. Elder.
Mt. Blanco	Crosby	2,750	21	54.1	+ 4.9	82	5	26	17	45	5.89	+ 4.73	3.60	0.0	3	14	1	15	s.	H. C. Smith.
Nacogdoches§§	Nacogdoches	271	10	64.1	+ 6.3	85	3	30	19	44	0.85	− 4.28	0.20	0.0	5	12	4	14	s.	Miss Mary Hofmann.
New Braunfels	Comal	720	20	67.6	+ 9.1	83	5†	38	18	36	2.48	+ 0.27	0.86	0.0	4	7	15	8	e.	J. Giesecke.
Palestine	Anderson	510	27	64.7	+ 7.8	82	3	25	18	30	1.51	− 2.12	0.56	0.0	7	12	11	7	se.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for November, 1909. District No. 8*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.					Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Texas—Cont'd.																				
Panter	Hood	1,000	19								4.69	+ 2.42	2.10	0.0	7					E. H. Snider.
Pierce	Wharton		3	66.2		83	5†	31	18	40	4.77		1.34	0.0	8	2	18	10		R. B. Pointer.
Plainview	Hale	3,370	1	53.4		85	5	26	17	47	4.52		2.63	0.0	3	18	5	7	s.	J. F. Sander.
Port Lavaca	Calhoun	20	8	71.0		90	1	43	18	31	3.38		0.92	0.0	7	10	11	9	s.	J. H. Bickford.
Ricardo	Nueces			72.6		94	1	48	18	34	1.83		0.70	0.0	7	15	11	4	se.	Lindsay Waters.
Riverside§§	Walker	169	5								1.08		0.50	0.0	4	8	1	21	n.	Mrs. C. W. Higdon.
Robert Lee§§	Coke	1,850	1	59.7		87	21	27	17	42	1.77		0.73	0.0	5	15	3	12	s.	H. D. Pearce.
Rockland§§	Tyler	136	5								1.98		0.73	0.0	3	15	2	13	s.	D. W. Bellamy.
Rosaville	Atascosa	558	2	70.0[d]		89	9	39[e]	18	40[e]	0.14		0.08	0.0	2	6	20	4	se.	W. F. M. Ross.
Runge	Karnes	308	14								1.83	− 0.17	0.79	0.0	5					Reiffert & Frobese.
Sabinal	Uvalde	964	5	68.8		89	1	35	18	41	0.99		0.66	0.0	3	12	2	16	e.	Jas. Johnston.
San Angelo	Tom Green		1																	C. W. Goff.
San Antonio	Bexar	701	24	68.2	+ 9.0	86	5	39	18	32	0.53	− 1.25	0.38	0.0	6	11	12	7	se.	U. S. Weather Bureau.
San Augustine	San Augustine			63.6		83	1	29	19	40	2.31		0.87	0.0	6	10	9	11		F. A. Wilson.
San Juanita‖	Hidalgo			75.1		95	1	49	19	35	0.12		0.12	0.0	1	1	5	24	se.	J. B. McAllen.
San Marcos§§	Hayes	588	16	66.2	+ 7.0	83	5†	39	19†	38	1.70	− 0.86	1.17	0.0	4	8	0	22	s.	Miss L. C. Ford.
San Saba	San Saba	1,712	5	62.8		91	2	22	18	51	2.38		1.30	0.0	6	16	12	2	s.	Jas. Burns.
Santa Gertrudes	Nueces		7								0.50		0.50	0.0	1					J. B. Wright, jr.
Seymour	Baylor	1,180	3	58.2		86	5	28	17	42	3.89		1.72	0.0	7	18	4	8	s.	F. M. Deaver.
Somerville	Burleson	251		66.2		88	2†	32	19	40	3.70		1.30	0.0	5	7	0	23	e.	W. A. Dolan.
Sonora	Sutton	2,200	6	60.0		84	5	27	18	44	1.18		0.42	0.0	5	2	26	2	s.	Mike Murphy.
Sugarland	Fort Bend	79	11																	O. M. Bakke.
Taylor	Williamson	583	8	65.5	+ 7.8	83	11	35	18	32	2.10	− 0.54	1.10	0.0	9	13	11	6	s.	U. S. Weather Bureau.
Temple	Bell	630	15	63.3	+ 6.6	82	11	35	18	38	4.01	+ 1.26	2.30	0.0	5	10	0	20	s.	W. B. Tyer.
Tilden‖	McMullen		3	73.0[e]		99[e]	3	38[e]	18	57[e]	T.		T.	0.0	0	5[e]	12[e]	6[e]	se.	Wm. Kuykendall.
Uvalde	Uvalde	937	1	65.3		91	1	33	18	42	0.41		0.26	0.0	2	18	3	9	se.	F. M. Getzendaner.
Valley Junction§§	Robertson	289	4								3.84		1.40	0.0	5	9	7	14	s.	T. M. Williams.
Victoria§§	Victoria	187	11	69.2[b]	+ 4.5	88[b]	5	44[b]	23†	35[b]	5.52	+ 2.60	1.98	0.0	6					C. C. Zirjacks.
Waco§§	McLennan	424	20	63.7	+ 6.2	84	11	34	18	34	2.26	− 0.43	1.52	0.0	2	11	0	19	s.	E. H. Hall.
Waxahachie§§	Ellis	556	13	62.9	+ 8.0	94	6	28	18†	44	3.24	+ 0.43	1.38	0.0	6	10	2	18	s.	C. D. Longserre.
Weatherford§§	Parker	864	20	60.6	+ 6.1	84	5	29	18	35	2.60	+ 0.58	1.10	0.0	5	17	0	13	n.	Miss J. Stickfort.
Wharton§§	Wharton	105	7	66.8[d]		86[d]	5	34[e]	18	38[d]	5.89[e]		2.20	0.0	9	12[e]	1[e]	14[e]	n.	Mrs. F. M. Hughs.
Wills Point	Van Zandt	524	4	63.0		82	4	31	18	29	2.94		0.84	0.0	7	12	8	10	s.	W. W. Gibbard.
Zapata	Zapata			74.2		92	1†	45	19	40	0.37		0.23	0.0	2	14	13	3	se.	F. H. Earnest.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 8, Texas and Rio Grande Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado																																	
Amethyst (near)	Rio Grande										T.		.05			.06	T.						T.					T.	.02	T.	.26		0.39
Blanca	Trinidad										T.		.34	T.	.48	.62	.16					.20	T.				T.	T.	.42	.44	.11		2.77
Cumbres	Conejos											.20			*	.11													.27	.11			0.69
Garnett	Rio Grande									.08			.23		.37	.66											.23	.51		.24			2.32
Hermit	do												.42		T.	.35												.55	T.	.50	.70		2.43
La Veta Pass	Trinchera																																
Manassa	Conejos										.17		.70	.13	.63	1.16	T.					.04	T.				.02	.23	.16	.54	.03		3.81
Platoro	do										T.		.42		T.	.25						T.						.01		.25	.08		0.81
Saguache	San Luis										.05	.05			.36													T.	.02	.05	.41		0.94
San Luis	Culebra														1.33													.59					1.92
Wagon Wheel Gap	Rio Grande																																
New Mexico																																	0.00
Agricultural College	Rio Grande											T.																		T.			T.
Alamogordo (near)	do												.02																				0.02
Alamogordo (2)	do																											.01	.22	.02			0.25
Albuquerque	do										.03	.06			*	.28						.01						.07	1.00	*	.40		1.85
Amizett	do											.01																		T.			0.01
Ancho	do										.01					.12						.01						.16	.48		.01		0.79
Aspen Grove Ranch	do											T.				.08	.04					T.						T.	.20	.13	T.		0.45
Bateman's Ranch	do															.15													T.				0.15
Bluewater	do						T.						T.																	.42	T.			0.42
Bluewater Reservoir	do													20															.35	.73			1.28
Boaz	Pecos																													T.			T.
Capitan	do																																
Carlsbad	do			.15									.06																.01		.16		0.38
Carrizozo (1)	Rio Grande																																
Carrizozo (2)	do																																0.00
Chama	do													22	.20	.20						.20							.18	.24	.08		1.32
Cloudcroft (1)	Pecos													20																			0.20
Cloudcroft (2)	do																																
Corona	do																													.25			0.25
Coyote	Rio Grande																											.10					0.10
Cundiyo	do															.02												.01	.25		.04		0.32
Demonstration Farm	Pecos																													.18			0.18
Duran (1)	do																											T.		.15			0.15
Duran (2)	do												T.														T.		.09				0.09
Edison Mine	Rio Grande																																
Elk (near)	Pecos													T.															.15				0.15
Escondido	Rio Grande												T.																				T.
Espanola	do																													.09			0.09
Estancia	do																											10	T.				0.10
Fort Stanton	Pecos												T.																T.				T.
Fort Sumner	do														.08														.08				0.16
Gallinas	do												T.			.06													.84	.07			0.97
Gallinas Planting Stat	do												.17	T.	T.	.47	T.					.19					T.	T.	.96	T.			1.79
Harvey's Upper Ranch	do																																0.00
Hillsboro	Rio Grande										.21				.04	.03						T.						•	.25				0.53
Hodges	do													.04															T.				0.04
Hondo Reservoir	Pecos																																
Hope	do										T.		.08	T.	.14	.10						.01						T.	.16	.31	.18		0.98
Hopewell	Rio Grande															T.													.45				0.45
Laguna	do																																
Lagunita	Pecos																												.06	.14			0.37
La Huerta	do			.10									.07															06		T.			0.06
Lake Valley	Rio Grande			T.																									.11	.08			0.19
Las Vegas	Pecos												T.	T.		T.													T.				T.
Los Lunas	Rio Grande													T.		T.													.25		T.		0.25
Los Tanos	Pecos												T.															T.	.10		.20		0.30
Magdalena	Rio Grande															T.						T.							.50				0.50
Mineral Hill	Pecos																																
Monument	do																											T.	T.	T.	T.		T.
Mountainair	Rio Grande													T.																			T.
Newman	do			.08																													0.08
Noria	do												.01																				0.01
Orogrande	do																																0.00
Oscura (near)	do																																
Oscura (2)	do				.38								.07									T.						.09		.19			0.73
Otis	Pecos																												.20				0.20
Otto	Rio Grande																																0.00
Pastura	Pecos																											T.		.84	.24		1.90
Red River	Rio Grande								.17			.17			.48																			0.00
Rincon	do																												T.				T.
Rio Grande Dam	do																											.10	.06	.01	.06		0.23
Rosedale	do												T.															T.	.18	.01			0.29
Roswell	Pecos												.06	.04																			0.09
San Marcial	Rio Grande																											.10	•	.40			0.50
San Rafael	do															T.												T.	.94	.01	.07		1.02
Santa Fe	do												T.			T.												T.	.22				0.22
Santa Rosa (1)	Pecos																												.20				0.20
Santa Rosa (2)	do																																0.00
Socorro	Rio Grande															T.						T.							.24				0.24
Stanley	do											T.																					T.
Strauss	do															.05												.09	33		.24		0.71
Taos	do												.12			.08						T.	.04					.05	71	.16	.16		1.32
Taos Canyon	do																											.02	.09				0.11
Tecolote	do																											T.	T.				T.
Three Rivers	do																												.20				0.20
Torrance	Pecos												T.																.25	.20			0.95
Tres Piedras	Rio Grande												.10			.40													T.	.15	.20		0.35
Truchas	do																														.01		0.03
Tularosa (1)	do												.01	.01																			0.00
Tularosa (2)	do																											T.	T.	.20			0.20
Vaughn	Pecos												.07			.27						T.							51		.03		0.88
Winsors	do																																
Texas.																																	
Abilene	Brazos							.43					.56		.04													.57	.36				1.96
Albany	do							.98					.50															2.66	.36				4.50
Alvin	Coast	4.69						T.		.90			.59	.74		1.45						.18									.94		9.49
Anahuac	do	.12								.43			.15	1.31	.69															1.01			3.71
Austin	Colorado												.02	1.35	.08	.02	.04									.01			32	T.			1.84
Ballinger	do								T.						.30	T.	T.												.65	.04			0.99
Barstow	Pecos													.05														.25	.25	T.			0.55
Beaumont	Neches	.27						.31		.98			T.	.07	.69			.34						.21										2.87
Beeville	Coast	T.	.22							1.55				.10		.81	T.	.05												.20	.16			3.09

TABLE 2.—*Daily precipitation for November, 1909. District No. 8*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Texas—Cont'd.																																	
Big Springs	Colorado				.07			T.	T.					.25		.04													2.52	1.13			4.01
Blanco‖	Guadalupe														.12			.04												.24	.54		0.94
Boerne	San Antonio								.05						T.	T.	T.			T.									.80	1.90	.20		2.95
Booth‖	Brazos	3.92											1.22		.10	.08	.06	.08													.08		5.54
Boquillas	Rio Grande																																
Bowie	Trinity														1.65	.13	.32													.77	2.42		5.60
Brazoria	Brazos	1.21						T.	.09		.04	.09	.85		.55	.17	.10	.04											T.		.60		3.74
Brazos‖	...do										.48					.34	T.												.52	2.58		3.92
Brenham‖	...do	.34							T.				.20	.46	.23	.16	1.76	.35												.07	.54		4.11
Bridgeport‖	Trinity								.07						T.															.06	.13		0.26
Brighton	Coast		.18											.03	1.00										T.					T.	.16		1.37
Brownsville	Rio Grande							T.					.06		.11			.06															0.58
Brownwood‖	Colorado	T.							.15						.16		.18										.18	.08	.05		.04		2.54
Cameron‖	Brazos													T.		.30	.07	T.										T.	.10	.62			1.09
Carmona	Neches	.04						.10	T.				.01	T.	.18	.03	.13					.06	T.								.24		0.79
Claytonville	Brazos													1.40		.10													2.17	.51			4.18
Coleman	Colorado							.03	.10					.13		.03													.70	1.18	.40		2.57
Colorado	...do							.08						1.35								•	•	3.15									4.58
Columbia	Brazos					T.	T.	.30					.15	.25	.60	.45	.80												.08	T.	.65		3.28
Columbus‖	Colorado	5.96							T.	.30			.10	1.06		.20	.84												T.	T.	.55		9.01
Comstock	Rio Grande							T.					T.	.12	T.	T.													1.48	T.			1.60
Corpus Christi	Coast	.03							.02	T.			T.	.29	.02	.02	.01	.01								T.	T.						0.53
Corsicana‖	Trinity								.27					.30	.57	.08	.19											T.	.04	T.	.09		1.49
Crockett	...do	.23						.09	.08		T.	T.		T.	.25	.62	.37														.08		3.89
Cuero‖	Guadalupe	.50								.39				.03	.52		.10	.10												2.25			2.19
Dallas‖	Trinity						.04						.04		.78		.20												.29	.26			1.91
Danevang	Coast							.10		.35				T.	.55	1.20	1.30													.85			3.70
Decatur	Trinity												1.50																2.00	1.60			5.10
Del Rio	Rio Grande							T.	.10					.03		.07													.06	.06	.08		0.40
Dialville	Neches						T.		.10		T.		T.	.10		.25	.25														1.35		2.05
Dublin‖	Brazos								.38					.12		.15	.12												.10	.23	2.10		3.20
Duval	Colorado											T.	.20	1.21		T.	T.									T.		T.		.49	.10		2.00
Eagle Pass	Rio Grande										.50					.14																	0.64
Edna	Lavaca	.02							.80			T.	.20	.80		.25	1.50					T.	T.						.50	1.35			5.42
El Paso	Rio Grande			T.									T.																				T.
Encinal	Nueces																																
Fairland	Colorado													.03														T.	.11	1.55	.97		2.66
Falfurrias	Coast					T.	T.	.34	.04						.20		T.																0.58
Flatonia	Guadalupe	.25									T.	T.	.14	T.	.81	.15	.09											T.	.08	.71	.41		2.64
Fort Clark‖	Rio Grande								T.	1.00	.35				T.													T.	.12				1.47
Fort McIntosh	...do								.54																								0.54
Fort Stockton	Pecos				T.									.17															.45	.33			0.95
Fort Worth	Trinity							.50	.46			T.	.01	2.33		.05	.10											.01	.04	.93	.68		5.11
Fredericksburg	Colorado					T.								.23		T.													.30	T.	1.66		2.19
Gainesville	Trinity								.26			.02		.93	.10	.30	.18													.02	1.95		3.76
Galveston	Coast								.66					T.	.35	.13	.11						T.				T.			.64		1.89
Gatesville	Brazos													.80																.90	1.00		2.70
Georgetown‖	...do	.04												.13	2.80		T.	.10										T.		.25	.41		3.73
Gonzales‖	Guadalupe	2.00								.08				1.10																.27	.19		3.64
Graham	Brazos						T.	T.	.63					.35		.08													.65	1.47	1.44		4.62
Grandfalls	Pecos																																
Grapevine	Trinity								.56			1.45		T.		.34										T.	T.			1.22			3.57
Greenville‖	Sabine	.15							.10				.45	.65	.45	.30	.30													T.	T.			2.40
Hallettsville	Lavaca	2.10								.10		T.	.37	T.	.35	.15	.35											T.	T.	.77	1.23			5.42
Haskell	Brazos								.37					.57		.10													T.	1.87	.13			3.04
Hebbronville	Coast													.30																			0.30
Hempstead‖	Brazos	.30						T.				T.		.30			.19											T.	T.				0.79
Henderson	Neches	.23					T.		1.42					T.	.13	.73	.03					.15									.20		2.89
Hewitt	Brazos								T.			T.	T.	.54	.08	T.	.03									.08		T.	2.32	.50			3.55
Hillsboro	...do									.19					1.83		.16																2.18
Hondo	Nueces								.15					T.											T.				T.	1.75			1.90
Houston	Coast	.19						T.	.22			.09	.23	.04	.91		.09				T.		T.					T.	T.	.91			2.68
Hubbard	Trinity																																
Huntsville‖	...do	.71								42		T.		T.	.41	.41	T.													.16			2.11
Jewett‖	...do													.11	.65	.67		.13										T.		.15			1.71
Junction	Colorado																																
Kaufman	Trinity											T.	.40	.60	.10	.15	.10													.25			1.60
Keene	Brazos								.23				.30	1.02	.02	.11	.09												.68	1.30			3.75
Kerrville‖	Guadalupe													.11	.04														.25	.89			1.29
Knickerbocker	Colorado							.09						.39		.02													.75	.19	.04		1.48
Kopperl‖	Brazos								T.						1.30	T.	T.											T.		1.30	2.24		4.84
Lampasas‖	...do														.15			.11											.13		.84		1.23
La Parra	Coast																																
Laureles Ranch	...do													1.03				.53											.16				1.72
Liberty‖	Trinity	.74								.60	.09		.15		.53	.35	T.	.05												T.			2.51
Llano	Colorado													T.	T.													T.	.06	1.01			1.07
Llano Grande	Rio Grande																																0.00
Long Lake‖	Trinity	.02											.02			.48		.88													.08		1.48
Longview‖	Sabine	.16							.45	.39					.20	.10	.80														.20		2.30
Lufkin	Neches	.88					.10							.05	.08	.60															.16		1.87
Luling‖	Guadalupe	.16							.06					.03	.88		.05														.11		1.29
Marble Falls‖	Colorado													T.		T.	.04											T.	.86	1.14		2.04
Marfa	Rio Grande												.30									10											0.40
Marshall	Sabine	.80							.41						.17	.06	.20														.30			1.94
Mexia‖	Brazos							T.	T.				1.30	.63			22									T.					.13		2.28
Midland	Colorado																																
Mount Blanco	Brazos												1.03	T.														.26	.22	1.00			1.48
Nacogdoches‖	Neches	.20								.15					.19		.13	.18										•	3.60	1.26			5.89
New Braunfels	Guadalupe								.07					.70																	T.			0.85
Palestine	Trinity							T.			.03	.05	.29	.06	.47	.09													.85	.86			2.48
Panter	Brazos						.48								.81	.28	.02						T.		T.						.52		1.51
Pierce	Colorado						.40	1.34				.50	.17	1.10	.10	.51													.25	2.10	.75		4.69
Plainview	Brazos												1.12																		.65		4.77
Port Lavaca	Coast						.80							.04	.68	.43												2.63	.77				4.52
Ricardo	...do								.70	.04				.05	.02	.65												.38	.92	.13			3.38
Riverside‖	Trinity							T.						.50	.18	.20		.20									.02	T.	.35				1.83
Robert Lee‖	Colorado								.02					.73	.13																		1.08
Rockland‖	Neches	.70												.73			.55												.54	.35			1.77
Rosaville	Nueces											T.		T.															.08	T.	.06		1.98
Runge	San Antonio	.49											.79		.25	.05														.25			0.14
Sabinal	Nueces								.16				T.					T.										.17		.66			1.83
San Angelo	Colorado																																0.99
San Augustine	Neches	.73							.04		.02			.87	T.	.62							T.							.03			2.31
San Antonio	San Antonio								.38			.04	T.		.01	.01										T.	T.	.07	.02				0.53

TABLE 2.—*Daily precipitation for November, 1909. District No. 8*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Texas—Cont'd.																																	
San Juanita	Coast						T.			T.					.12																	0.12
San Marcos‖	Guadalupe														1.17		.25	.23												.05			1.70
San Saba	Colorado													.20	.01	.04													.14	.69	1.30		2.38
Santa Gertrudes‖	Coast									.50																							0.50
Seymour	Brazos							.22					.09	.96		.03													1.72	.85	.02		3.89
Somerville	do												1.00	T.	.30	.60	.50													T.	1.30		3.70
Sonora	Rio Grande													.42		15													.35	.20	.06		1.18
Sugarland	Brazos																																
Taylor	do								.01				.04	.63	.02	.03	.10									T.		T.	.12	1.07	.08		2.10
Temple‖	Brazos													.10	.80		.08										T.			.73	2.30		4.01
Tilden	Nueces																													T.			T.
Uvalde	do								.15																				T.		.26		0.41
Valley Junction‖	Brazos								.80						1.40	.36		.30													.98		3.84
Victoria‖	Guadalupe	.47							1.71						.26		1.98													.55	.55		5.52
Waco‖	Brazos														.74		T.														1.52		2.26
Waxahachie‖	Trinity	1.38							.40				.10	.90		T.	.07										T.	T.		T.	.39		3.24
Weatherford‖	do								1.10						.50	.10	.12												T.	.78	T.		2.60
Wharton‖	Colorado	2.20					T.		.10				.48	.20	.22	1.80	.05	.32													.52		5.89
Wills Point	Sabine							.04	.84				.11	T.	.49	.21	.44					T.			T.						.81		2.94
Zapata	Rio Grande								.23	.14																							0.37

TABLE 3.—*Maximum and minimum temperatures at selected stations November, 1909. District No. 8, Texas and Rio Grande Valley.*

Date.	Colorado.				New Mexico.																Texas.							
	Garnett.		San Luis.		Agricultural College.		Carlsbad.		Fort Stanton.		Mountainair.		Rosedale.		Roswell.		Santa Fe.		Santa Rosa.		Abilene.		Big Springs.		Brownsville.		Corpus Christi.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	53	14	63	14	76	35	.....	.....	70	31	65	26	62	33	74	32	58	27	75	31	74	44	77	35	94	73	84	70
2...	62	18	69	18	79	33	.....	.....	76	28	72	30	66	35	73	31	66	33	74	33	79	46	82	36	85	69	81	69
3...	67	17	72	17	78	43	.....	.....	74	27	71	29	66	37	76	32	65	37	80	29	80	56	83	38	83	59	77	61
4...	64	21	69	25	82	42	.....	.....	72	31	72	36	69	43	83	41	65	35	79	36	79	54	81	52	84	62	77	65
5...	62	16	68	17	82	37	.....	.....	75	27	74	35	65	41	79	37	63	33	80	42	84	64	90	58	86	70	80	71
6...	64	15	65	18	81	42	.....	.....	76	26	75	39	68	42	79	38	64	38	78	37	79	65	80	60	84	71	79	74
7...	60	17	64	19	79	35	.....	.....	73	27	68	42	63	35	78	38	63	34	72	43	79	55	83	64	85	62	80	73
8...	58	13	60	19	72	40	.....	.....	62	22	58	30	56	32	61	43	56	25	63	28	62	50	71	50	85	66	80	69
9...	55	17	58	23	78	47	.....	.....	66	25	62	29	62	36	74	38	55	33	69	33	74	46	80	50	82	62	76	63
10...	50	25	49	36	75	50	.....	.....	65	42	64	39	60	46	80	48	56	36	72	41	77	61	81	51	84	65	78	73
11...	42	11	43	17	72	35	.....	.....	63	29	59	25	54	27	70	38	51	23	65	38	78	64	82	52	84	71	80	74
12...	37	8	43	25	60	40	.....	.....	57	25	54	38	51	29	69	34	48	28	62	41	79	63	73	52	84	72	78	75
13...	37	9	36	15	58	38	.....	.....	51	35	52	25	52	23	58	34	41	25	52	32	69	44	69	49	83	74	79	62
14...	36	13	38	20	67	26	.....	.....	58	19	53	23	51	25	64	27	46	28	62	26	57	39	57	38	84	70	72	60
15...	37	23	35	22	61	38	.....	.....	56	27	50	36	46	36	71	37	42	26	54	43	73	48	72	45	84	68	79	71
16...	35	0	34	− 6	60	32	.....	.....	58	24	53	21	47	17	56	32	43	20	59	25	64	38	67	38	84	73	80	57
17...	32	− 7	28	− 7	64	24	.....	.....	66	13	56	18	52	22	58	19	51	22	59	19	55	32	69	27	75	57	63	50
18...	41	− 1	49	− 6	67	27	.....	.....	64	14	58	19	57	25	69	18	54	24	70	20	61	34	72	34	72	54	64	46
19...	40	1	57	10	71	26	.....	.....	65	25	63	28	62	34	75	24	56	28	70	39	71	45	71	42	79	54	71	55
20...	47	12	53	22	75	31	.....	.....	66	32	64	33	69	35	71	41	59	29	72	47	78	54	82	48	83	67	78	67
21...	47	19	55	20	74	33	.....	.....	72	43	65	32	64	38	83	38	52	30	74	50	82	58	85	51	84	72	80	68
22...	52	25	52	23	72	37	.....	.....	63	33	68	32	60	32	74	50	52	35	67	42	67	43	74	40	84	72	89	63
23...	56	23	60	25	73	32	.....	.....	67	36	69	41	68	36	80	36	57	41	78	53	71	40	82	38	81	65	69	52
24...	55	23	62	22	78	35	.....	.....	73	37	65	36	64	39	78	36	62	32	76	42	76	51	73	48	84	64	73	67
25...	54	24	61	27	79	32	.....	.....	77	25	54	34	64	39	73	35	62	37	79	39	76	55	73	48	85	66	74	71
26...	55	23	55	28	70	36	.....	.....	69	27	35	20	62	40	68	38	56	39	70	38	76	65	75	60	81	69	76	73
27...	48	29	60	24	55	41	.....	.....	57	36	29	22	52	34	71	43	46	23	61	33	76	65	75	62	81	67	77	73
28...	49	23	44	22	53	20	.....	.....	37	24	37	16	34	23	47	32	31	23	57	29	67	41	69	40	83	72	77	72
29...	35	22	37	19	50	20	.....	.....	43	23	38	20	35	20	37	28	33	21	36	27	47	41	43	40	83	64	74	69
30...	38	19	31	15	59	22	.....	.....	42	18	37	16	40	25	51	22	31	15	43	26	59	41	54	34	78	61	76	61
31...																												
Mns	48.9	15.7	52.3	18.1	70.0	34.3	.....	.....	63.6	27.7	58.2	29.0	57.4	32.6	69.4	34.7	52.8	29.3	66.9	35.4	71.6	50.1	73.9	46.0	82.9	66.4	76.7	65.8

Date.	Texas.																											
	Del Rio.		El Paso.		Fort McIntosh.		Fort Stockton.		Fort Worth.		Galveston.		Hallettsville.		Houston.		Lufkin.		Palestine.		Plainview.		San Antonio.		Seymour.		Taylor.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	88	55	73	40	91	71	80	42	77	50	77	72	85	65	84	66	84	53	77	58	72	34	86	64	77	41	82	55
2...	85	62	77	42	90	66	84	40	83	46	75	68	80	57	76	60	82	49	79	55	78	34	78	57	80	38	79	53
3...	84	52	78	51	89	54	85	52	85	53	75	66	79	57	81	55	84	43	82	56	83	40	82	50	83	47	80	48
4...	83	52	80	49	90	61	88	47	83	55	76	68	83	52	81	53	83	43	80	56	84	46	83	52	83	50	80	50
5...	86	64	80	50	92	70	90	48	82	64	79	72	84	62	83	64	86	52	78	62	85	49	86	67	86	52	82	62
6...	85	64	81	50	91	69	89	57	82	65	78	74	85	62	83	67	84	62	80	67	82	43	84	64	85	54	82	66
7...	84	67	77	49	90	68	90	55	80	62	78	73	84	65	81	67	78	62	79	63	74	53	83	69	78	60	82	64
8...	83	62	70	53	91	65	73	50	65	54	78	63	81	64	82	62	79	63	75	58	64	35	78	63	62	46	77	61
9...	76	62	80	49	86	63	82	55	70	47	77	67	80	60	77	58	74	59	77	54	70	36	77	57	72	38	77	52
10...	79	62	77	60	89	65	86	58	77	63	78	72	82	62	82	66	78	59	77	63	79	54	84	64	78	61	78	61
11...	79	65	75	47	89	68	85	44	81	68	78	74	84	66	81	68	81	59	80	66	73	40	82	69	80	62	83	69
12...	80	66	60	45	89	69	81	57	77	67	78	72	81	68	79	66	84	62	77	67	74	48	82	69	80	63	77	68
13...	74	47	57	40	94	69	68	43	75	50	78	73	81	68	81	59	80	67	81	56	66	40	83	56	69	41	79	55
14...	74	42	67	34	76	60	75	34	56	44	76	65	78	56	67	57	74	57	64	54	44	33	70	50	54	36	64	50
15...	78	61	67	44	90	69	82	38	72	51	78	71	78	65	77	66	80	62	72	60	54	38	82	60	69	44	77	60
16...	68	49	59	34	86	67	73	38	70	40	78	58	78	60	80	51	75	58	69	44	54	29	71	53	64	34	71	47
17...	66	40	61	28	74	53	60	27	53	36	59	51	61	45	59	42	59	52	57	38	53	26	63	45	57	28	57	40
18...	62	36	66	33	73	52	73	32	57	33	58	48	62	40	63	38	62	31	59	35	59	27	64	39	61	30	61	35
19...	73	38	70	35	81	48	81	38	69	43	68	56	72	42	71	43	72	30	68	43	76	29	74	43	72	33	71	41
20...	81	49	74	49	91	59	85	46	78	59	75	68	80	58	75	59	73	52	75	57	78	39	81	58	77	54	79	63
21...	86	44	74	53	93	64	87	56	80	65	76	72	82	66	83	70	82	63	81	70	72	44	84	62	64	44	82	68
22...	82	44	72	49	92	63	73	50	70	41	78	61	82	69	82	53	82	65	74	44	67	37	82	55	56	40	75	46
23...	75	42	73	47	82	50	83	45	60	37	63	49	78	45	68	43	65	35	64	36	74	34	71	44	62	34	66	38
24...	77	45	76	44	82	61	82	52	71	44	72	63	78	50	71	49	73	38	70	40	77	36	78	51	73	37	73	50
25...	75	58	76	40	87	68	82	40	75	62	74	69	80	62	78	60	78	49	75	58	70	39	81	67	78	51	78	63
26...	81	67	70	44	90	66	75	54	75	65	74	69	81	65	77	64	78	52	77	61	70	50	81	67	75	61	79	64
27...	82	67	57	37	89	68	82	58	76	65	75	69	81	65	77	65	83	56	76	63	70	50	81	67	76	62	79	67
28...	72	53	53	31	88	70	68	40	76	64	75	70	81	65	77	65	78	55	77	63	63	33	79	68	68	41	80	63
29...	53	45	49	28	85	51	42	34	71	61	74	69	77	66	74	64	77	55	76	59	36	32	71	66	49	41	70	63
30...	64	42	58	25	74	50	62	30	63	47	72	66	75	64	74	64	73	54	67	54	50	30	66	52	58	39	63	48
31...																												
Mns	77.2	53.4	69.6	42.7	86.8	62.6	78.2	45.3	73.0	53.4	74.3	66.3	79.1	59.7	76.8	58.8	77.4	53.2	74.1	55.3	68.4	38.3	78.1	58.3	70.9	45.4	75.4	55.6

Climatological Data for November, 1909.

DISTRICT No. 9, COLORADO VALLEY,

FREDERICK H. BRANDENBURG, District Editor.

GENERAL SUMMARY.

The weather conditions of the northern half of the district during November differed considerably from those that prevailed in the southern portions. In the north there was a remarkable excess of cloudiness, with heavy precipition, and generally high temperatures, especially during the night. In the south, on the contrary, the skies were unusually clear, the precipitation was light, and the mean temperatures were nearly normal, while the nights were cooler than usual. Killing frost occurred in southern Arizona on the 16th, or about two weeks earlier than the average date.

TEMPERATURE.

The mean of the 137 stations reporting was 44.9°, or 0.4° above the normal. There was an unusual excess in the northern part of the district, in western Wyoming, and northwestern Colorado. Toward the south, the excess was less, and over much of the Gila Valley there was a considerable deficiency. By subdivisions the means and departures were: Western Wyoming, 29.3°, +2.0°; western Colorado, 33.6°, +0.9°; eastern Utah, 38.3°, +0.4°; western New Mexico, 44.9°, +0.5°; Arizona, 53.2°, +0.1°. The first week was unusually warm in all parts of the district, with the highest temperatures from the 3d to the 6th. The highest reading was 98° at Gilabend, Ariz. From the 10th to the 15th the weather was generally cloudy and the day temperatures were lower, but low night temperatures did not occur until the 16th, when decidedly low readings were observed in all localities. The lowest noted was 16° below zero at Flagstaff(2). The nights continued cold until the 19th, after which generally warm weather continued until the 25th. From the 26th to the close of the month the weather was cool, but temperatures did not fall so low as during the preceding cold spell.

PRECIPITATION.

The average of the 174 stations reporting was 1.07 inches, or 0.06 inch below the normal. The distribution was not uniform. In Colorado, Wyoming, and Utah there was a general and pronounced excess, the heaviest falls occurring in southern Utah and southwestern Colorado. In New Mexico and Arizona there was a considerable deficiency, the month being practically rainless in the Mimbres and upper Gila valleys, in southwestern New Mexico. By watersheds the means and departures were: Green, 1.61 inches, +0.77 inch; Grand, 1.32 inches, +0.35 inch; San Juan, 1.96 inches, +0.10 inch; Little Colorado, 0.72 inch, −0.42 inch; Gila, 0.66 inch, −0.36 inch; lower Colorado, 1.30 inch, +0.21 inch. The heaviest local precipitation was 5.09 inches at Strawberry, Utah. Five stations in southwestern New Mexico reported no rainfall, and several others but a trace. There were two general periods of precipitation. The first extended from the 10th to 15th, and was confined mainly to the northern half of the district. The second, from the 26th to 30th, covered nearly all the Colorado Valley. On the 21st moderately heavy rain or snow occurred in the western portions of Colorado and Wyoming. The snowfall in the mountain districts was fairly heavy, and a considerable depth remained on the ground at the close of the month.

RIVERS.

As the precipitation occurred largely in the form of snow, it had but little effect on the run-off; the rivers fluctuated slightly during the month. In many of the Arizona streams there was no flow; in others, especially those in the northern part of the Territory, there was a moderate flow near the middle of the month. The water supply was considered above the average, except in southern Arizona and New Mexico, where it was slightly deficient.

MISCELLANEOUS.

The only noteworthy feature was the unusual cloudiness in the northern portions of the district. At Grand Junction there was but 50 per cent of the possible sunshine, or 21 per cent less than the normal. In Arizona the sunshine was somewhat above the usually high average.

The Coconino Forest Experiment Station at Flagstaff, Ariz.—The meteorological work of the Coconino Forest Experiment Station has been confined principally to the observation of temperature, humidity, wind direction and movement, precipitation, and evaporation at 3 stations on the experimental grounds, 1 in the forest, and 2 in an open park at different distances from the forest. These stations are maintained for the purpose of studying the differences in temperature and moisture between the open country and the forests, together with the air drainage into the parks, and a summary of the observations thus far made will be embodied in a report to be prepared at an early date by the director of the station.

A few observations of temperature, wind movement, and evaporation have been made at other points where experiments in planting are being conducted, but owing to unavoidable delay in the receipt of instruments the study of temperature and moisture conditions on those areas will not be taken up systematically until next spring, when it is intended to make a careful study of the physical factors on 3 planting and sowing areas representing 3 typical conditions on the forest.

TABLE 1.—*Climatological data for November, 1909. District No. 9, Colorado Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Daniel	Uinta	6,740	10	29.0	+ 2.0	63	3	− 4	17	45	1.00	+ 0.53	0.50	5.0	3	13	9	8	nw.	J. M. Van Dervort.
Dixon	Carbon																			Carey O. Morgan.
Eden	Sweetwater	6,577		29.4[a]		61[a]	3†	− 4[a]	13	48[a]	0.42[a]		0.39[a]	3.0[a]	2[a]	15[a]	7[a]	7[a]	w.	Eden Valley L'd & Ir. Co.
Fontenelle	Uinta	6,400	3																	C. W. Holden.
Green River	Sweetwater	6,083	4																	Geo. H. Maxom.
Kendall	Fremont	7,630																		Art. Doyle.
Pinedale	do	7,167	3	28.6		56	3†	− 3	17	41	0.83		0.25	6.5	6	12	8	10	nw.	Forest Service.
Willow Creek Cabin	do	7,500	1	30.2[i]		57[i]	4	− 5[i]	18	38[i]	2.58[i]		1.20[i]	30.5[i]	7[i]	6[i]	1[i]	14[i]	sw.	John L. Allen.
Colorado.																				Dan McArthur.
Ashcroft	Pitkin	9,483	8	29.4		59	6	− 6	16	39	1.71		0.38	24.0	13					Mrs. J. G. Thompson.
Breckenridge	Summit	9,536	19	27.8	+ 1.7	64	3	− 4	13	47	0.71	− 1.06	0.25	9.0	4	3	16	11	nw.	San Juan P. & W. Co.
Cascade	San Juan	8,900	3								4.89		1.25	56.2	10	16	3	11	e.	Lawrence Nolan.
Chromo	Archuleta	7,500	3	33.4		70	3	− 8	16	56	1.23		0.30	16.5	8	20	7	3	sw.	Bessie McDonough.
Cochetopa	Saguache	9,088									0.58		0.28	9.7	8	10	11	9	w.	A. A. Wood.
Collbran	Mesa	6,000	16	36.8		65	6	6	16	38	1.97	+ 1.12	0.86	21.5	7	12	7	11	sw.	Jas. H. Caron.
Columbine	Routt	8,766									2.24		0.60	29.2	11	8	7	15	sw.	Geo. W. Wade.
Columbine Ranch	De'ta	6,925									2.38		1.00	20.4	6	12	5	13	s.	U. S. Weather Bureau.
Corona	Grand	11,660	2	22.2		44	3	− 5	16	20	1.96		0.60	30.8	11	11	7	12	w.	C. W. Roe.
Crawford (near)	Montrose	6,600		37.2		63	6†	5	16	34	0.58		0.10	11.0	6	16	5	9		Charles L. Ross.
Crested Butte	Gunnison	8,867																		C. M. Paine.
De Beque	Mesa	4,935																		E. M. Getts.
Delta	Delta	4,965	18	36.2	− 0.5	85	1	13	16†	67	1.01	+ 0.50	0.30	2.0	8	14	9	7		Harry T. Hamilton.
Dillon	Summit	8,800																		Geo. R. Simmons, jr.
Dolores	Dolores	6,500		34.8		65	15	12	5†	50	0.84		0.28	13.3	4	17	8	5	w.	Geo. W. Dunkley.
Dunkley	Routt	7,400	3																	U. S. Weather Bureau.
Durango	La Plata	6,534	16	36.8	− 0.4	68	4	5	16	40	1.81	+ 0.64	0.70	15.3	7	13	11	6	nw.	J. M. Witteman.
Eagle	Eagle	6,598	4	33.9		64	2†	0	16	44	1.08		0.41	5.5	5	14	8	8	w.	San Juan P. & W. Co.
Eureka	San Juan	10,000	2								2.29		0.41	27.0	11					J. B. Willsea.
Fruita	Mesa	4,510	10	38.6	+ 1.5	68	6	16	18	46	0.92	+ 0.41	0.36	T.	5	13	4	13		San Juan W. & P. Co.
Gladstone	San Juan	10,400	3								3.00		1.09	30.0	8	6	15	9	ne.	E. A. O'Neil.
Glenwood Springs (near)	Garfield	5,823	11								1.26	+ 0.37	0.30	18.0	7	14	3	13	w.	U. S. Weather Bureau.
Grand Junction	Mesa	4,608	18	40.8	+ 0.9	68	9	20	16	37	1.05	+ 0.42	0.46	1.1	5	11	5	14	e.	Mrs. Belle Kauffman.
Grand Lake	Grand	8,153									1.20		0.65	2.0	2	24	1	5		David Evans.
Grand Valley	Garfield	5,089	17	37.1	− 0.2	70	2†	0	16	49	1.84	+ 1.03	0.61	5.2	8	9	5	16		Clarence Adams.
Gunnison	Gunnison	7,670	16	28.6	+ 1.9	60	7	− 3	17	53	0.40	− 0.25	0.15	4.4	6	14	11	5	sw.	C. W. Harkness.
Hayden	Routt	6,337		24.0		59	11	−10	15	39	1.72		0.68	23.0	7	19	6	5		John S. Spear.
Hesperus	La Plata	8,870	11																	Lawrence J. Finch.
Horsefly	Montrose	8,700																		Elizabeth Schalles.
Ignacio	La Plata	6,425																		P. H. Foley.
Ironton	Ouray	10,000									2.62		0.60	39.1	14	15	5	10	sw.	H. A. Howe.
Kremmling (near)	Grand	7,337	1	31.0		61	4†	− 3	17	50	1.04		0.51	8.5	8	11	11	8		W. H. Ogle.
Lake City	Hinsdale	8,686	4	32.8		63	2†	− 9	16	49	0.95		0.41	17 0	5	14	10	6	s.	A. G. Wallihan.
Lay	Routt	6,190	15	32.7	+ 2.3	67	5	− 9	16	52	1.79	+ 1.08	0.66	14.5	7	8	5	17	sw.	T. T. Richards.
Lujane	Montrose	6,620	3	39.0		67	3†	6	16	36	0.80		0.28	8.0	8	12	12	6	se.	B. M Krumpanitzky.
Mancos	Montezuma	6,960	10	37.1	− 0.1	67	3†	− 1	16	44	1.53	+ 0.21	0.43	13.8	7	14	8	8	w.	Homer Harrington.
Marble	Gunnison	7,951		34.5		65	3	− 4	16	44	1.97		0.76	24.0	11	12	9	9	n.	William D. Lillard.
Marshall Pass	Saguache	10,846	6								1.77		0.42	36.0	6	14	13	3	w.	T. Baker.
Meeker	Rio Blanco	6,182	17	33.9[c]	+ 1.2	65[c]	4†	−10[c]	17	48[c]	2.53	+ 1.63	1.31	23.3	7	9	12	6	sw.	R. Butterfield.
Montrose (near)	Montrose	5,811	20	37.8	+ 2.1	72	6	7	16	48	0.73	+ 0.17	0.21	6.4	9	9	14	7		Arthur Hanthorn.
Nast	Pitkin	7,953		30.1		59	5	0	17	43	1.16		0.46	12.3	5	16	5	9	w.	Shaw Brothers.
Pagoda	Routt	6,500	18	32.7	− 0.4	68	4	− 8	16	48	1.77	+ 0.83	0.65	18.0	5	18	2	10		E. T. Walker.
Pagosa Springs	Archuleta	7,108	2	31.0		70	3	−12	16†	56	1.66		0.46	21.0	8	15	5	10		J. M. Underwood.
Paonia	Delta	5,694	8	40.8		70	6	12	16	39	1.17	+ 0.49	0.38	7.0	7	10	11	9	sw.	F. A. Field.
Parshall	Grand										1.05		0.50	7.0	4					Mrs. Maggie Cammann.
Pitkin	Gunnison	9,500									0.92		0.28	13.9	5	17	7	6	s.	Mrs. C. P. Hill.
Rangely	Rio Blanco	5,050	10	35.6	+ 2.9	66	3	4	15	50	1.36	+ 0.88	0.35	13.2	6	4	11	15	w.	Dorothea Greiner.
Redcliff	Eagle	8,695	14								1.80	+ 0.41	0.50	23.0	7	15	5	10		Clinton B. Smith.
Rico	Dolores	8,824	8								1.74		0.55	32.9	13	14	5	11	sw.	J. Dill.
River Portal	Montrose	6,570	3	35.4		62	2†	5	15	36	1.22		0.23	8.6	9	15	4	11		W. F. Irving.
Sapinero	Gunnison	8,125	9	31.2		60	3	− 2	16	40	1.90		0.61	16.7	9	15	6	9	w.	W. S. Park.
Silt	Garfield	5,441	13	37.2	− 0.2	78	1	− 4	16	52	0.70	− 0.02	0.50	8.0	6	5	18	7	w.	V. E. Kerr.
Silverton (1)	San Juan	9,285	5								3.22		0.80	66.8	11	17	0	13	sw.	San Juan P. & W. Co.
Silverton (2)	do	9,400	3	26.4		62	3	−13	16	47	2.46		0.60	35.5	10	11	9	10	sw.	H. J. Wills.
Spruce Lodge	Grand	9,600	1								1.12		0.49	15.5	6					M. Elliot Houston.
Steamboat Springs	Routt	6,683		32.4		72	3†	− 7	17	57	2.18		0.84	12.5	8	19	2	9		San Juan P. & W. Co.
Tacoma	La Plata	7,300	3	38.8		68	3†	0	15	39	2.44		0.93	20.5	8	15	5	10	n.	Do.
Terminal Dam	do	8,300	3								3.02		1.15	36.0	8	18	9	3	n.	Martin Esser.
Uncompahgre Plateau	Montrose	8,400									1.87		0.45	27.0	10	8	12	10	sw.	C. E. Macy.
Whitepine	Gunnison	9,500	8	27.4		53	3	− 9	16	35	1.79		0.45	28.0	7	11	10	9	s.	Percy A. Hughes.
Yampa	Routt	8,000									1.24		0.43	17.8	8	10	10	10	nw.	
Utah.																				
Aneth	San Juan	4,800	8								3.04		1.40	23.0	5	22	1	7	s.	Maude A. Palmer.
Baker	do	7,560																		E. H. Wolf.
Basin	Grand	9,500																		James Jeffs.
Castle Dale	Emery	5,500	10	33.8[b]		64[b]	3	0	16†	46	2.28		0.83	0.0	4	12	18	0		H. J. Cooper.
Dragon	Uinta		1																	U. S. Forest Service.
Dyer Mountain	do	10,000																		Do.
Elkhorn	do	7,000																		H. C. Wickman.
Emery	Emery	6,260	9	44 3.		75	3†	5	15†	65	0.04		0.04	0.0	1	4	3	23	sw.	Geo. H. Barney.
Escalante	Garfield	5,700	9	38.8		68	4	5	17	43	1.40		0.95		3	15	0	15		Joseph T. Atkin.
Experiment Station	Washington	2,880	5																	H. Curtis.
Fort Duchesne	Uinta	5,000	21	35.8	+ 2.4	65	3†	7	28	46	1.09	+ 0.73	0.80	8.0	4	9	17	4	nw.	Joseph A. Lyman.
Grayson	San Juan	5,750	5	44.0		70	5	18	19	41	2.80		2.00	10.0	4	17	0	13	s.	B. F. Miller.
Green River	Emery	4,080	12								0.75	+ 0.19	0.35		4	17	7	6		John P. Hite.
Hite	Garfield	3,000	10	48.0		75	9	23	16	39	0.90		0.10		1	10	13	7	nw.	W. T. Dobson.
Kanab	Kane	4,925	16																	Gertrude W. Carpenter.
La Sal	San Juan	7,000	9	37.8[b]		67[b]	20	6[c]	17	34	1.28		0.58	8.0	3	11[a]	9[a]	9[a]		Michael Hansen.
Loa	Wayne	7,000	17	31.4	+ 0.4	61	6	− 7	16	46	0.30	− 0.07	0.30	3.0	1					J. A. Gardner.
Mill Canyon	Washington	8,400									3.20		1.30	16.0	3					Henry Crouse.
Moab	Grand	4,000	20	43.1	+ 2.2	73	6	19	16	46	1.56	+ 0.93	0.88	T.	5	7	10	13		D. B. Perkins.
Monticello	San Juan		1																	J. W. Seaman.
Ranch	Kane	6,700	8	32.4		68	3	3	17	46	4.67		2.01		5	19	7	4	w.	Jas. G. Bleak.
St. George	Washington	2,880	28	43.6	− 3.9	75	3	23	17	48	1.92	+ 1.48	0.72	0.0	4					O. E. Jorgensen.
Scofield	Carbon	7,625	1																	Wm. W. Flanigan.
Springdale	Washington		2	49.7		82	3†	24	15	30	1.85		0.83	0.3	3	8	11	11		U. S. Reclamation Service
Strawberry Valley	Wasatch		3	33.3		64	3	8	13†	31	5.09		1.40	36.5	11	6	12	12		Henry Cullum.
Sunnyside	Carbon	5,280	1								0.17		0.07	6.0	5					

TABLE 1.—*Climatological data for November, 1909. District No. 9*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Utah—Cont'd.																				
Teasdale	Wayne	7,000	1																	Josiah Shurtz.
Theodore	Wasatch	5,507	4	33.8		61	3	4	17†	42	1.00		0.48	4.3	8	8	13	9		L. Claire Winslow.
Tropic	Garfield	7,000	12	37.4	+ 0.4	70	3†	− 6	18	50	1.79	+ 0.87	1.13	2.2	4	14	6	10	nw.	E. P. Bolton.
Vernal	Uinta	5,380	14	35.4	+ 1.0	58	6	15	18	31	1.10	+ 0.26	0.50	4.0	6	17	6	7		Joab Collier.
Wellington	Carbon	5,540	10	28.8		64	2	− 7	17	50	1.10		0.60	6.0	2					Melville Branch.
New Mexico.																				
Blackrock	McKinley		2	42.0		75	1	9	16	51	0.38		0.19	1.8	4	19	5	6	w.	Wm. J. Oliver.
Bloomfield	San Juan	5,500	13	39.8	+ 0.7	74	6	5	17	57	0.36	− 0.17	0.25	2.0	4	16	9	5	sw.	Fred Le Clerc.
Cambray	Luna	4,215	11								T.		T.	0.0	0	24	5	1	w.	Agent, Southern Pac. Ry.
Cliff	Grant	4,470	11	46.6	− 1.9	79	6	19	17	44	0.20	− 0.81	0.20	0.0	1					T. J. Clark, sr.
Columbus	Luna	4,054									T.		T.	0.0	0	21	2	7	w.	Agent, E. P. & S. W. R. R.
Deming	do	4,333	33	52.0		83	8	20	28†	46	0.00	− 0.56	0.00	0.0	0	30	0	0	w.	Agent, Southern Pac. Ry.
Dulce	Rio Arriba	6,767	3																	W. A. Fuller.
Fort Bayard	Grant	6,152	35	48.4[d]	+ 2.0	75[d]	4†	19	28	41[d]	0.07	− 0.61	0.07	0.5	1	26	4	0	w.	U. S. A. Gen'l Hospital.
Fort Wingate	McKinley	6,997	46	41.6	+ 1.1	71	4	12	16	43	0.13	− 0.66	0.05	1.3	4	11	11	8	sw.	Medical Corps, U. S. A.
Frisco	Socorro	5,800	3																	John R. Milligan.
Fruitland	San Juan	4,800	17	40.2	+ 1.1	73	6	8	18	53	0.05	− 0.26	0.05	0.5	1	17	5	8	nw.	Cyril Jas. Collyer.
Gage	Luna	4,486	3	51.4		80	5†	19	16	42	0.00	− 0.39	0.00	0.0	0	24	0	6	w.	Agent, Southern Pac. Ry.
Hachita	Grant	4,504									0.00		0.00	0.0	0	16	10	4	nw.	Agent E. P. & S. W. R. R.
Hermanes	Luna	4 451									0.00		0.00	0.0	0					Do.
Lordsburg	Grant	4,245	10	51.2	+ 0.2	84	5	20	16	49	0.00	− 0.52	0.00	0.0	0	14	13	3	sw.	Agent Southern Pac. Ry.
Luna (near)	Socorro	7,300	5	37.0		68	4†	4	17	54	0.30		0.20	2.0	2	15	14	1	w.	C. B. Martin.
Manuelito	McKinley	6,252	5	43.8[e]		76[e]	23	24[e]	1†	48[e]	0.12		0.12	1.2	2					W. A. L. Tarr.
Mimbres	Grant	5,007	3								0.09		0.09	0.0	1	23	7	0	nw.	Charles Dennis.
Pratt	do	4,415									0.00		0.00	0.0	0	26	1	3	w.	Agent, E. P. & S. W. R. R.
Redrock	do	4,150	5								0.10		0.10	0.0	1	21	9	0		Robt. H. Woods.
Rodeo	do	4,118	1								0.08		0.07	0.0	2	30	0	0		Agent, E. P. & S. W. R. R.
Rosa	Rio Arriba	6,000	5								0.14		0.06	2.6	4	16	8	6		B. A. Candelario.
Arizona.																				
Allaire's Ranch	Cochise	4,184	13								0.19	− 0.62	0.11	0.0	3	24	1	5	sw.	Thos. Allaire.
Arizona Canal Dam	Maricopa	1,372		61.0	− 1.8	94	3	38	13†	38	0.52	− 0.18	0.52	0.0	1	13	11	6	e.	U. S. Reclamat'n Service.
Aztec	Yuma	492	9	57.6	− 6.0	94	4	31	17†	54	0.79	− 0.13	0.79	0.0	1	23	0	7	w.	Agent, Southern Pac. Ry.
Benson	Cochise	3,523	26	54.4	− 1.0	87	3†	23	16	53	0.35	+ 0.02	0.20	0.0	2	13	1	16	e.	Do
Bisbee	do	5,500	19	53.6	+ 1.3	78	6	29	28†	32	0.23	− 0.47	0.23	0.0	1	25	5	0	e.	Rev. J. G. Pritchard.
Bonita	Graham	4,916	30																	A. Johnson & Co.
Bowie	Cochise	3,756	9	54.8	+ 2.2	86	4	27	16†	44	0.60	− 0.04	0.40	0.0	2	9	0	21	w.	Agent, Southern Pac. Ry.
Buckeye	Maricopa	980	17	56.6	− 1.7	94	3†	24	17	57	0.67	− 0.10	0.65	0.0	2	23	5	2	ne.	H. E. Kell.
Casa Grande	Pinal	1,396	28																	Agent, Southern Pac. Ry.
Casa Grande Ruins	do	1,422	1	58.0		95	3	28	16	56	0.52		0.41	0.0	2	23	4	3	sw.	F. Pinkley.
Cavecreek	Maricopa	1,520	2	57.4		92	3	28	15	51	0.29		0.29	0.0	1	25	3	2	sw.	E. H. Howard.
Chin Lee	Apache	6,090	1	41.2		75	6	8	16†	57	0.47		0.23	5.1	5	18	1	11	sw.	Fr. L. Osterman, O. F. M.
Chlarsons Mill	Graham	8,000	4																	H. R. Chlarson.
Clifton	do	3,584	17	55.2		81	3†	33	14†	36	0.02	− 0.56	0.02	0.0	1	19	8	3		W. B. Cramer.
Cline	Gila	2,300	8	54.2	− 0.1	85	3	26	17	52	0.64	− 1.08	0.48	0.0	3	15	12	3	sw.	W. M. Clanton.
Cochise	Cochise	4,219	11	55.6	+ 3.8	89	3†	30	12†	49	0.42	− 0.36	0.30	0.0	2	18	10	2	sw.	Agent Southern Pac. Ry.
Columbia	Yavapai	1,900	9	63.0	+ 2.4	93	2†	37	15	41	0.89	− 0.61	0.75	0.0	3	21	4	5	se.	M. J. Nolan.
Congress	do	3,688	13	57.0	− 2.5	85	3	35	27	30	1.42	− 0.35	1.22	0.0	3	20	3	7	sw.	Assayer, Congress Mine.
Dos Cabezos	Cochise	5,250	1	51.5		79	3	21	16	52	0.26		0.26	0.0	1	23	7	0	e.	N. Erickson.
Douglas	do	3,930	6	53.6		88	3	20	30	56	0.02		0.02	0.0	1	26	4	0	sw.	Dr. F. T. Wright.
Dudleyville	Pinal	2,204	18																	G. F. Cook.
Flagstaff (1)	Coconino	6,907	17	35.1	+ 0.5	67	4	4	17	46	1.51	+ 0.11	0.87	10.9	5	16	8	6	sw.	U. S. Weather Bureau.
Flagstaff (2)	do	7,452	4	34.3		65	3	− 4	16	49	1.53		0.91	10.2	3	21	5	4		C. C. Moers.
Flagstaff (3) §	do	7,500	1	34.1		68	4	−16	16	55	1.62		0.91	14.8	3	17	6	7	sw.	U. S. Forest Service.
Florence	Pinal	1,504	9	57.7	+ 0.9	90	3	32	16	48	0.50	− 0.11	0.26	0.0	2	21	6	3	sw.	Agent, P. & E. R. R.
Fort Apache	Navajo	5,200	30	47.0	+ 2.2	91	2	14	17	65	0.84	− 0.27	0.70	0.0	3	21	6	3	w.	Post Surgeon.
Fort Huachuca	Cochise	5,100	23	56.8	+ 3.8	83	9	30	16	35	0.50	− 0.49	0.50	0.0	1	29	0	1	s.	Do.
Fort Mohave	Mohave	604	20	60.6	+ 0.2	90	1†	33	14	48	0.20	− 0.28	0.18	0.0	1	21	8	1		A. F. Duclos.
Gilabend	Maricopa	737	18	60.8	+ 2.0	98	3	29	27	50	0.42	− 0.04	0.42	0.0	1	25	2	3		Agent, Southern Pac. Ry.
Globe	Gila	3,525	8	54.6		88	5	30	16	44	0.88		0.63	0.0	3	10	20	0	nw.	Dr. B. G. Fox.
Grand Canyon (1)	Coconino	6,866	5	35.2		66	3†	− 1	29	44	1.06		0.55	10.6	4	10	12	8	sw.	Agent, Santa Fe R. R.
Grand Canyon (2)	do	3,676	2	49.0		87	26	27	14	44	0.85		0.62	0.0	3	15	10	5	sw.	C. C. Spaulding.
Greer	Apache	9,200									0.82		0.40	8.5	5	19	5	6	s.	Mrs. M. Butler.
Holbrook	Navajo	5,069	18	43.5	+ 0.5	77	2	14	17	57	0.15	−0.69	0.10	2.0	2	25	2	3		Thorwald Larson.
Intake	Gila	2,230	4								0.80		0.60	0.0	2	22	5	3	w.	A. H. Neal.
Jerome	Yavapai	4,743	12	53.2	+ 1.5	79	2†	29	16	35	1.21	− 0.36	0.74	4.5	3	21	6	3	sw.	Dr. L. A. Hawkins.
Keams Canyon	Navajo		4	41.4		70	3†	9	16	48	0.90		0.49	9.0	4	16	8	6	sw.	L. R. Ballard.
Kingman	Mohave	3,326		50.5		88	3	20	13	51	1.69		1.06	0.3	4	11	12	7	ne.	G. R. Gooding.
Maricopa	Pinal	1,186	29	59.4	+ 0.1	96	3	28	16	53	0.34	− 0.28	0.32	0.0	2	20	6	4	e.	Agent, Southern Pac. Ry.
Mesa	Maricopa	1,244	14	59.0	− 0.1	96	2	32	15	53	0.34	− 0.48	0.34	0.0	1	17	12	1	sw.	C. L. Diehl.
Mohawk Summit	Yuma	538	9	64.8		93	1	40	28	38	0.14		0.14	0.0	1	18	12	0	e.	Agent, Southern Pac. Ry.
Natural Bridge	Gila	4,990	20								1.68	− 0.25	1.10	2.0	3	18	9	3	sw.	D. G. Goodfellow.
Nogales	Santa Cruz	3,830	5	55.7		89	1†	27	15†	52	0.88		0.50	0.0	2	22	7	1		Wallace & Summerhayes.
Oracle	Pinal	4,500	19	54.4	− 0.3	78	4†	30	17	40	0.66	− 0.63	0.42	0.0	2	22	6	2		W. H. Winters.
Paradise	Cochise	3,940	2	49.5		82	5	18	17	51	0.35		0.35	0.0	1	18	6	6	sw.	J. C. Hancock.
Parker	Yuma	345	11																	Dr. H. K. Marshall.
Payson	Gila	5,500	1	47.8		85	2	17	13	57	1.45		1.00	3.5	2	14	7	9	sw.	M. McDonald.
Phœnix (1)	Maricopa	1,108	14	59.2	+ 0.5	92	3	34	16	46	0.28	− 0.68	0.28	0.0	2	22	7	1	e.	U. S. Weather Bureau.
Phœnix (2)	do	1,092	18	58.2	− 0.3	94	3	30	16†	53	0.45	− 0.34	0.45	0.0	1	22	8	0	se.	G. Acuff.
Phœnix (3)	do	1,189	1	60.6		93	2	34	16†	47	0.38		0.32	0.0	2	19	8	3	sw.	J. A. Ream.
Pinal Ranch	Pinal	4,520	15								2.38	− 0.16	1.19	3.0	4	21	5	4		Irion & Craig.
Pinto	Apache	5,660	5																	Mrs. C. F. Henning.
Prescott	Yavapai	5,320	28	46.2	+ 2.4	78	3	16	13	56	0.96	− 0.14	0.50	7.0	3	22	4	4		Dr. J. W. Flinn.
Quartzsite	Yuma	800	2	56.9		86	4	30	17	47	0.41		0.31	0.0	2	20	8	2	n.	W. E. Scott.
Redrock	Pinal	1,856	2	59.6		92	3†	29	16	52	1.29		0.99	0.0	3	7	22	1	sw.	W. J. Crowell.
Roosevelt	Gila	2,175	4	58.4		85	3	37	16	38	0.92		0.74	0.0	3	20	7	3		Wm. A. Schoenfeld.
Sacaton	Pinal		2	58.2		97	3	24	17	61	0.40		0.40	0.0	1	25	3	2		E. W. Hudson.
St. Johns	Apache	5,650	4	45.2		78	4	13	17	55	0.48		0.35	4.7	3	19	3	8	sw.	Alex. Shreeve.
St. Michaels	do	6,950	13	37.6	+ 2.1	66	5	8	16	42	1.00	− 0.03	0.39	7.2	4	16	12	2	sw.	Rev. A. Weber, O. F. M.
Salome	Yuma	880	2	55.8		87	2	27	17	51	1.31		1.13	0.0	3	14	15	1	w.	Agent, A. & C. R. R.
San Carlos	Gila	2,456	19	53.8	+ 1.2	90	6	22	17	54	0.18	− 0.65	0.18	0.0	1	22	6	2	sw.	F. S. Thomas,
San Simon	Cochise	3,609	24	53.3	− 0.1	88	1	22	15†	52	0.46	+ 0.21	0.32	0.0	2	17	9	4		Agent, Southern Pac. Ry.
Seligman	Yavapai	5,219																		C. W. Dougherty.
Sentinel	Maricopa	685	11	60.6	− 2.6	94	1	35	16†	48	0.25	− 0.19	0.25	0.0	1	21	7	2		Agent, Southern Pac. Ry.
Showlow	Navajo	6,300	6	48.2		84	2	10	14	59	0.43	− 0.82	0.21	4.2	4	13	5	12	sw.	Miss Z. Hall.
Silverbell	Pima	2,650	4	63.1		88	2	36	27	28	1.33		0.75	0.0	3	17	9	4	w.	Imperial Copper Co.
Supai	Coconino	3,200	2	50.7		86	8	31	16	52	1.90		0.90	0.0	4	19	5	6		Chas. E. Coe.
Tempe	**Maricopa**	1,165	5	57.3		94	3	30	17	51	0.26		0.24	0.0	2	26	2	2	w.	**F. H. Simmons.**

TABLE 1.—*Climatological data for November, 1909. District No. 9*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Arizona—Cont'd.																			
Thatcher	Graham	2,800	....	52.8	.....	86	4†	22	16	53	1.85	.....	1.85	0.0	1	17	13	0	nw.	Prof. J. H. Larson.
Tombstone	Cochise	4,350	14	55.5	+ 0.9	88	5	28	14	41	0.15	− 0.52	0.09	0.0	2	24	5	1	.....	F. N. Walcott.
Tuba	Coconino	4,500	9	41.9	− 2.6	72	5	15	16	46	0.30	− 0.40	0.13	3.0	4	13	8	9	ne.	G. H. Kraus.
Tucson (1)	Pima	2,390	29	57.3	− 1.3	91	4	26	16	53	0.87	+ 0.08	0.43	0.0	3	3	24	3	nw.	University of Arizona.
Tucson (2)	....do	2,380	1	54.1	.....	94	4	22	16	58	0.99	.....	0.52	0.0	2	27	3	0	.....	H. G. Brown.
Upper San Pedro	Cochise	5,000	....	....	.....	....	....	....	....	....	....	.....	....	....	....	....	....	....	.....	B. T. Stuart.
Vail	Pima	3,421	11	58.4	− 4.7	84	14†	27	19	50	0.07	− 0.76	0.07	0.0	1	12	0	18	se.	Agent, Southern Pac. Ry.
Walnut Grove	Yavapai	3,649	19	....	.....	....	....	....	....	....	1.02	− 0.51	0.62	5.5	3	14	12	4	.....	J. O. Carter.
Wickenburg	Maricopa	2,072	2	59.2	+ 4.6	94	3	30	16	48	0.47	− 0.01	0.45	0.0	2	25	4	1	sw.	Agent, P. & P. R. R.
Willcox	Cochise	4,164	29	50.5	− 1.8	84	2†	19	15†	54	0.22	− 0.25	0.12	0.0	2	18	0	12	s.	Agent, Southern Pac. Ry.
Williams	Coconino	6,750	10	48.8	.....	85	25	18	13†	48	0.81	− 0.82	0.51	8.2	3	18	2	10	ne.	H. Victor.
Winslow	Navajo	4,853	1	45.0	.....	80	7	15	17†	58	0.75	.....	0.45	5.0	3	23	0	7	.....	L. C. Henning.
Yarnell	Yavapai	4,700	11	....	.....	....	....	....	....	....	1.50	− 0.70	1.15	7.0	3	9	9	12	s.	E. L. Bartholomew.
Yuma (1)	Yuma	141	30	60.6	− 1.3	91	3	35	29	46	0.18	− 0.14	0.18	0.0	1	26	3	1	n.	U. S. Weather Bureau.
Yuma (2)	....do	150	2	56.0	.....	94	4	27	29	53	0.22	.....	0.21	0.0	2	21	8	1	n.	E. L. Crane.
Nevada.																				
Caliente	Lincoln	....	....	....	.....	....	....	....	....	....	....	.....	....	....	....	....	....	....	.....	.....
Las Vegas	Clark	2,033	2	49.4	.....	83	3	22	17†	52	0.70	.....	0.60	0.0	2	25	0	5	.....	Agent, Salt Lake Route.
Logan	....do	1,700	3	50.9	.....	85	3	25	16	46	1.04	.....	0.38	0.0	5	10	15	5	n.	Roy M. Filcher.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
¶ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 9, Colorado Valley.*

Stations.	River basins	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																															
Daniel	Green									T.	T.				.30				T.	T.	.50	T.	.20	T.	T.	T.	T.				T.		1.00
Dixon	do																																
Eden	do											T.			T.						.03	.39						T.					0.42
Fontenelle	do																																
Green River	do																																
Kendall	do																																
Pinedale	do														.08						.24	.03	.15		.25		.08						0.83
Willow Creek Cabin	do									.05										.05	1.20	.08	.91					.25			.04		2.58
Colorado.																																	
Ashcroft	Grand										.05	.10	.38	.06	.09	.13	.06					.25	.14				T.	.21	.13	.06	.05	1.71
Breckenridge	do										T.	.16	.15			T.						.25						T.	T.	.15	T.	0.71
Cascade	San Juan										.09	T.	.44	.07	1.25	1.23						29				.19	1.04	.01	.28			4.89
Chromo	do										.04		.20		.20	.27						12						T.	.08	.30	.02	1.23
Cochetopa	Gunnison										T.	.04	.02			.08						.06						.01	.02	.28	.07	0.58
Collbran	Grand										.26		.14	.06		.86						13						.48		.04		1.97
Columbine	Yampa									*	.55	.14		.07	.20	.60					.12	.40	.06		.03			.07				2.24
Columbine Ranch	Gunnison										.18	T.			1.00	.60						30						.20		.10		2.38
Coronall	Grand										.06	.12	.20	.46	.12		.08					.04	.60							.06	.14	.08	1.96
Crawford	Gunnison													.10		.10	.10											.10	.09	.09		0.58
Crested Butte	do																																
De Beque	Grand																																
Delta	Gunnison									.07			.03		.10	.26						.05						.30	.08	.12		1.01
Dillon	Grand																																
Dolores	Dolores														.26	.20												.28		.10		0.84
Dunkley	Yampa																																
Durango	San Juan												.25	T.	.70	.30						.06					.03	.24		.23		1.81
Eagle	Grand										.40		T.			.18						.41	.02					.07	T.			1.08
Eureka	San Juan												.09	.34	.41	.17						.17	.08			.09	.31	.37	.18	.08		2.29
Fruita	Grand										.10	T.	T.	T.	.03	.36						.12					T.	.31	T.	T.		0.92
Gladstone	San Juan											.03	.57	T.	T.	T.						.50					.18	1.09	.29	.09	.25	3.00
Glenwood Springs	Grand										.20	.10	T.	T.	T.	.24	.15					T.	.21					.06	T.	.30		1.26
Grand Junction	do									T.	.05		T.	T.	.25	.26						.05						.44		T.		1.05
Grand Lake	do											T.					.55						.65		T.			T.		T.	T.	1.20
Grand Valley	do									.31	.05	T.	.03	.04	.61						.16						.61		.03	T.		1.84
Gunnison	Gunnison											.07	T.			.04						.15						.08	.04		.02		0.40
Hayden	Yampa	.11						.03		.68				.27	.41												.19				.03		1.72
Hesperus	San Juan																																
Horsefly	Gunnison																																
Ignacio	San Juan																																
Ironton	Gunnison									*	.11	.04	.25	.05	.21	.60	.13					.18					.07	.60	.21	.08	.09		2.62
Kremmling	Grand										.10	.05	.06			.20					.50	.01					T.	.04		.10		1.04
Lake City	Gunnison										T.			T.	.02	.41												T.	.31	.14	.07	0.95
Lay	Yampa										.66	.17	T.	.02	.05	.20					.54							.15		T.		1.79
Lujane	Gunnison											T.	.04	.01		.12	.04					.03						.28	.08	.20	T.	0.80
Mancos	San Juan												.20		.30	.26						.20						.43	.06	.08		1.53
Marble	Grand									*	.42	.09	.17		*	.22						.76	.04					.19	*	.08		1.97
Marshall Pass	Gunnison										T.	.25	.30	T.		.42						.30							.10		.40	1.77
Meeker	White										.03	.40	.10		*	*	1.31					.29							.40	T.		2.53
Montrose	Gunnison										T.		.02	.04	.06	.09						.03					.03	.21	.06	.16	.03	0.73
Nast	Grand										.13	T.	.31	T.		.10						.16	.46					T.			T.	1.16
Pagoda	Yampa										.65	T.	.22	T.		.37						.32							.21			1.77
Pagosa Springs	San Juan										T.		.19		.30	.46						.11					T.	.25	.04	.25	.06	1.66
Paonia	Gunnison										.05	.05	T.		.07	.20						.35						.38		.07	T.	1.17
Parshall	Grand										.10			.25								.50						.20				1.05
Pitkin	Gunnison										.10	.25	.12			T.						.28	T.								.17		0.92
Rangely	White									.34	.20	T.	T.	.35	.22												.23	.02					1.36
Redcliffe	Grand	.20	T.										.10	.40	*	.50							.50	T.					.10				1.80
Rico	Dolores										.05	.01	.25	.05	.04	.55	.02					.15					.11	.20	.17	.10	.04		1.74
River Portal	Gunnison										.23	.08			.16	.11				.13							.21	.12	.16		.02		1.22
Sapinero	do										T.	.35	.01			.45	.07					.61						.07	.09	.21	.04		1.90
Silt	Grand												.05	.50	.10							.02							T.	.02	.01		0.70
Silverton (1)	San Juan										.09	.24	.29	.21	.50	.73						.10					.10	.80		.06	.10		3.22
Silverton (2)	Grand											.20	.29	.20	.40	.40						.09					.10	.60	.09	.09	T.		2.46
Spruce Lodge	do										.15	.10		.06		.06						.49								.26			1.12
Steamboat Springs	Yampa										.47		.09	.05		.26				T.	.84	.10	.12					.25					2.18
Tacoma	San Juan											T.	.23	T.	.93	.20						.14					.07	.55	.11	.21			2.44
Terminal Dam	do									T.		T.	.25	.02	1.15	.32						.24					.09	.70		.25			3.02
Uncompahgre Plateau	Gunnison										.18	.04	.14	.13	.45	.22	.06					.14						.37	.14		T.		1.87
Whitepine	do										.16	.16	.35			.15						.28								.24	.45		1.79
Yampa	Yampa										.12		.14	.03	.03	.43						.36						.05		.08			1.24
Utah.																																	
Aneth	Colorado																																
Baker	do														1.40	.60											.59	.30	.15				3.04
Basin	Grand																																
Castle Dale	Green														.60	.50						.35						.83					2.28
Dragon	do																																
Dyer Mountain	do																																
Elkhorn	do																																
Emery	Colorado										T.				.10	.40						T.					T.						0.50
Escalante	do										.15				.95													.30					1.40
Fort Duchesne	Green										.07	T.			.02	T.				T.				T.			T.	.80		.20			1.09
Grayson	San Juan														*	.80										*	2.00						2.80
Green River	Green													.10	.23	.35														.07			0.75
Hite	Colorado													T.	T.	.10												T.		T.			0.10
Kanab	do																																
La Sal	Grand										T.	T.			.20	.50						T.						.58					1.28
Lon	Colorado															.30																	0.30
Mill Canyon	do										.80				1.10												1.30						3.20
Moab	Grand													.09		.20	.32											.88		.07			1.56
Monticello	do																																
Ranch	Colorado										.54	.22			1.19	.82											1.90						4.67
St. George	do									.35				.30	.55												.72						1.92
Scofield	Green																																
Springdale	Colorado									.45	T.		T.	T.	.83							T.					.57						1.85
Strawberry Valley	Green									.50	1.40	.15			.20	.45	.10				.97	.92	.15				.10	.15					5.09
Sunnyside	Green									.02	.03				.04							T.					.07		.01				0.17
Teasdale	Colorado																																
Theodore	Green									T.	.04	.03		T.	.13	.20					.05	T.					.05	.48		T.	.02		1.00
Tropic	Colorado									.44	T.		T.	T.	.19	.03												1.13					1.79
Vernal	Green										.50				.15							.11					.01	.32		.01			1.10
Wellington	do															.60										.50							1.10
New Mexico.																																	
Blackrock	Little Colorado														T.													.19	.06	.08	.05		0.33
Bloomfield	San Juan												.04			.01					.06	T.						.25					0.86

TABLE 2.—*Daily precipitation for November, 1909. District No. 9*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New Mexico—Cont'd.																																	
Cambray	Mimbres												T.																				T.
Cliff	Gila																										.20						0.20
Columbus	do												T.																				T.
Deming	do																																0.00
Dulce	San Juan																																
Fort Bayard	Mimbres													T.	T.										T.	T.	.07		T.	T.			0.07
Fort Wingate	Little Colorado																											.01	.04	.05	.03		0.13
Frisco	Gila																																
Fruitland	San Juan															T.						T.						T.	.05	T.			0.05
Gage	Gila																																0.00
Hachita	do																																0.00
Hermanes	do																																0.00
Lordsburg	do																																0.00
Luna	do																											.20		.10			0.30
Manuelito	Little Colorado																											*	.12				0.12
Mimbres	Mimbres																											.09					0.09
Pratt	Gila																										T.						T.
Redrock	do																											.10					0.10
Rodeo	do			.01																								.07					0.08
Rosa	San Juan												.01																.06	.04	.03		0.14
Arizona.																																	
Allaires Ranch	Sonora												.11														.06	.02					0.19
Arizona Canal Dam	Salt																											.52					0.52
Aztec	Gila																										.79						0.79
Benson	San Pedro												.15															.20					0.35
Bisbee	do												T.															.23					0.23
Bonita	Mimbres																																
Bowie	Gila												.20														.40						0.60
Buckeye	do																										.65	.02					0.67
Casa Grande	do																																
Casa Grande Ruins	do															.11												.41					0.52
Cavecreek	Verde												T.															.29					0.29
Chin Lee	San Juan												T.		T.	.03												.23	.15	.02	.04		0.47
Chlarsons Mills	Gila																																
Clifton	do												T.															.02					0.02
Cline	Salt															.14												.48	.02				0.64
Cochise	Desert												.30															.12					0.42
Columbia	Agua Fria														.07	.07											T.	.75					0.89
Congress	Hassayampa									T.			T.			.20											.40	.82					1.42
Dos Cabezos	Desert																											.26					0.26
Douglas	Sonora																											.02					0.02
Dudleyville	Gila																																
Flagstaff (1)	Little Colorado									T.			.01	T.	.44	.18											.61	.27	T.				1.51
Flagstaff (2)	do									T.					.60													.91	.02				1.53
Flagstaff (3)	do													T.	.32	.39											T.	.91					1.62
Florence	Gila																										.26	.24					0.50
Fort Apache	Salt											T.			.07												.70		.07				0.84
Fort Huachuca	San Pedro																											.50					0.50
Fort Mohave	Colorado															.02												.18					0.20
Gilabend	Gila																										.42						0.42
Globe	Salt													.10		.15												.63					0.88
Grand Canyon (1)	Colorado						T.							T.	.55						.01						.10	.40					1.06
Grand Canyon (2)	do													.03													.62	.20					0.85
Greer	Little Colorado												.05			.10									T.		T.	.15	.40	.12			0.82
Holbrook	do														.05										T.		T.	T.	.10				0.15
Intake	Salt															.20											.60						0.80
Jerome	Verde												.02				.45											.74					1.21
Keams Canyon	Little Colorado													.11	.49												.10	.20					0.90
Kingman	Colorado								.05						.58												.61	.45					1.69
Maricopa	Gila												.02															.32					0.34
Mesa	Salt											T.															.34						0.34
Mohawk Summit	Gila												T.														.14						0.14
Natural Bridge	Verde														T.	.42												1.10	.16				1.68
Nogales	Santa Cruz												.38														.50						0.88
Oracle	San Padre												.24															.42						0.66
Paradise	Desert																											.35					0.35
Parker	Colorado																																
Payson	Verde												T.			.45											T.	1.00					1.45
Phoenix (1)	Salt												T.														.25	.03					0.28
Phoenix (2)	do																										.45						0.45
Phoenix (3)	do																										T.	.32	.06				0.38
Pinal Ranch	do												.53		.57													1.19	.09				2.38
Pinto	Little Colorado																																
Prescott	Hassayampa														T.	.22											.24	.50					0.96
Quartzsite	Colorado															.10												.31					0.41
Redrock	Santa Cruz												.25			.05											T.	.99					1.29
Roosevelt	Salt									T.	.16				T.													.74	.02				0.92
Sacaton	Gila																											.40					0.40
St. Johns	Little Colorado															.03												.35	.10				0.48
St. Michaels	do													T.	T.	.25						T.						.39	.34		.02		1.00
Salome	Colorado											.01			.17											1.13							1.31
San Carlos	Gila													T.														.18					0.18
San Simon	do												.14															.32					0.46
Seligman	Verde																																
Sentinel	Gila																										.25						0.25
Showlow	Little Colorado												.02			.10												.10	.21				0.43
Silverbell	Santa Cruz												.50		.08													.75					1.33
Supai	Colorado									.05	T.					.35						T.				T.	.60	.90					1.90
Tempe	Salt																											.24	.02				0.26
Thatcher	Gila																											1.85					1.85
Tombstone	San Pedro											.06															.09						0.15
Tuba	Little Colorado															.10											.02	.13	.05				0.30
Tucson (1)	Santa Cruz												.43	.02														.42					0.87
Tucson (2)	do												.52															.47					0.99
Upper San Pedro	San Pedro																																
Vail	Santa Cruz																											.07					0.07
Walnut Grove	Hassayampa									T.		T.			.40												.50	.12					1.02
Wickenburg	do												.02															.45					0.47
Willcox	Desert												.10														.12						0.22
Williams	Colorado														.32	.19											T.	.30					0.81
Winslow	Little Colorado															.20	T.										.45	.10					0.75
Yarnell	Hassayampa															.15										1.15	.20					1.50
Yuma (1)	Colorado											T.															.18						0.18
Yuma (2)	do															.01											.21						0.22

TABLE 2—*Daily precipitation for November, 1909. District No. 9*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Nevada.																																	
Caliente	Colorado																																
Las Vegas	...do										.60																	.10				0.70
Logan	...do									.38	.01				.19												.31	.15					1.04

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 9, Colorado Valley.*

Date.	Wyoming.				Colorado.										Utah.										New Mexico.			
	Daniel.		Green River.		Durango.		Grand Junction.		Gunnison.		Meeker.		Steamboat Springs.		Emery.		Fort Duchesne.		Hite.		Moab.		St. George (Experiment station).		Fort Bayard.		Fort Wingate.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	47	23	.....	.....	59	19	56	29	45	32	57	16	59	9	.....	.....	52	19	67	34	60	24	70	25	66	35	69	29
2	48	22	.....	.....	65	27	64	31	44	30	64	21	64	16	.....	.....	61	20	69	33	67	26	74	26	74	41	69	26
3	63	27	.....	.....	66	30	65	31	50	28	58	22	72	19	.....	.....	65	20	69	33	67	25	75	27	70	40	70	28
4	60	15	.....	.....	68	29	64	28	48	29	65	25	69	17	.....	.....	63	20	71	32	68	25	74	26	75	41	71	30
5	57	12	.....	.....	64	26	65	36	49	25	65	20	67	13	.....	.....	62	19	71	34	68	26	73	30	75	40	65	33
6	53	13	.....	.....	66	28	66	29	52	18	65	17	72	15	.....	.....	64	18	73	34	73	27	72	26	71	37	66	25
7	46	10	.....	.....	60	28	62	30	60	7	55	16	64	14	.....	.....	57	24	69	34	65	26	69	24	72	45	64	31
8	50	16	.....	.....	62	27	60	32	54	8	62	18	62	12	.....	.....	57	22	67	33	67	27	70	25	68	45	63	28
9	45	17	.....	.....	58	30	68	33	45	6	60	26	57	15	.....	.....	53	30	75	45	69	60	57	31	65	40	62	37
10	41	20	.....	.....	49	26	52	38	38	9	58	28	57	22	.....	.....	50	34	59	46	63	39	56	37	64	33	59	39
11	40	12	.....	.....	41	19	47	31	36	12	40	14	41	12	.....	.....	44	16	57	33	54	28	53	30	61	32	46	19
12	34	5	.....	.....	39	20	41	31	38	14	35	18	40	11	.....	.....	44	22	57	35	47	32	57	29	54	31	45	23
13	27	2	.....	.....	34	13	40	30	41	18	.....	.....	39	17	.....	.....	40	21	53	32	50	30	46	26	52	25	41	15
14	23	10	.....	.....	31	28	48	32	37	19	39	16	38	12	.....	.....	40	29	52	31	50	28	46	31	56	22	46	28
15	30	− 2	.....	.....	36	12	37	25	33	21	.....	.....	38	18	.....	.....	40	29	51	34	30	31	49	31	50	22	45	23
16	30	10	.....	.....	38	5	36	20	31	− 2	32	11	38	− 5	.....	.....	35	12	51	23	39	19	48	26	55	23	47	12
17	35	− 4	.....	.....	46	12	40	20	30	− 3	30	−10	41	− 7	.....	.....	36	11	49	25	39	25	53	23	60	24	56	14
18	42	6	.....	.....	50	19	45	21	36	− 2	42	0	40	− 3	.....	.....	40	10	52	26	44	20	58	24	65	25	60	19
19	39	26	.....	.....	51	21	43	21	42	2	48	7	45	3	.....	.....	41	12	56	27	47	21	54	25	66	38	61	21
20	40	30	.....	.....	57	24	50	28	49	16	52	39	46	29	.....	.....	58	27	71	33	54	28	60	28	65	36	64	35
21	37	25	.....	.....	39	31	51	31	40	22	48	34	52	32	.....	.....	58	27	67	47	58	32	57	27	64	34	44	34
22	39	29	.....	.....	48	24	52	27	44	24	45	29	45	27	.....	.....	60	28	67	31	60	29	63	30	74	33	64	27
23	40	32	.....	.....	56	27	58	32	46	23	46	29	46	33	.....	.....	65	29	70	33	62	32	64	29	74	40	62	25
24	37	31	.....	.....	60	27	63	30	42	19	47	32	52	31	.....	.....	58	28	69	31	62	31	66	29	72	38	67	30
25	38	32	.....	.....	62	32	56	29	43	17	58	24	53	20	.....	.....	51	23	72	34	66	32	62	34	.....	34	65	40
26	35	26	.....	.....	47	37	64	40	50	15	55	39	50	27	.....	.....	62	35	69	44	66	41	54	36	.....	28	60	38
27	36	16	.....	.....	41	32	54	33	35	6	.....	.....	41	16	.....	.....	41	29	62	37	57	39	48	34	.....	20	48	28
28	41	7	.....	.....	36	20	38	30	32	10	29	7	33	1	.....	.....	32	7	50	37	57	29	52	27	.....	19	37	20
29	45	15	.....	.....	34	24	39	29	33	16	33	7	41	7	.....	.....	32	10	48	36	43	30	33	24	48	25	37	24
30	41	17	.....	.....	34	18	40	30	34	18	32	5	37	11	.....	.....	35	20	44	34	41	32	35	27	50	32	35	22
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	41.3	16.7	.....	.....	49.9	23.8	52.0	29.6	41.9	15.2	48.9°	18.9°	50.0	14.8	.....	.....	49.9	21.7	61.9	34.1	56.4	29.8	59.0	28.2	64.1[a]	32.6	56.3	26.8

Date.	Arizona.																								Logan, Nev.	
	Bisbee.		Flagstaff.		Fort Apache.		Grand Canyon.		Parker.		Phoenix.		Prescott.		St. Michaels.		San Carlos.		Tucson.		Yuma.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	72	43	60	16	78	22	58	34	.....	.....	83	40	74	23	59	19	.....	.....	86	33	83	46	79	33
2	73	47	62	18	91	26	58	34	.....	.....	91	45	77	26	61	22	.....	.....	88	40	88	57	84	38
3	74	49	65	19	80	30	66	36	.....	.....	92	54	78	22	64	22	.....	.....	90	52	91	55	85	41
4	76	49	67	25	79	35	66	40	.....	.....	91	53	76	34	62	22	.....	.....	91	49	91	50	81	37
5	76	48	64	27	79	34	64	36	.....	.....	85	50	73	32	66	25	.....	.....	79	45	88	46	80	36
6	78	49	60	24	74	33	60	38	.....	.....	83	50	68	29	65	25	.....	.....	82	42	84	42	75	33
7	69	44	57	11	76	27	54	29	.....	.....	80	43	68	21	56	21	.....	.....	83	39	83	43	77	40
8	71	43	65	19	75	24	62	18	.....	.....	88	45	76	33	61	30	.....	.....	87	43	87	41	75	36
9	71	47	55	34	74	23	55	17	.....	.....	82	53	62	43	62	31	.....	.....	84	39	79	51	60	45
10	63	50	44	17	74	22	46	18	.....	.....	68	48	52	27	53	22	.....	.....	74	44	70	47	59	42
11	65	45	43	9	58	22	40	17	.....	.....	67	43	53	18	51	17	.....	.....	70	32	69	39	58	37
12	55	41	40	12	51	29	46	16	.....	.....	62	42	61	17	42	25	.....	.....	56	45	69	41	62	41
13	52	41	38	5	51	24	34	18	.....	.....	65	39	50	16	41	13	.....	.....	55	38	71	36	55	28
14	58	40	34	27	60	27	36	18	.....	.....	69	46	45	19	48	33	.....	.....	71	41	70	45	52	28
15	56	42	35	4	53	36	38	18	.....	.....	62	43	41	18	40	26	.....	.....	59	42	65	42	57	28
16	57	31	38	7	61	15	38	22	.....	.....	67	34	49	26	39	8	.....	.....	66	26	66	44	55	25
17	61	33	44	4	67	14	48	20	.....	.....	76	36	57	37	46	11	.....	.....	74	32	72	47	63	29
18	66	37	56	12	68	18	54	24	.....	.....	77	38	67	26	51	16	.....	.....	81	34	76	48	65	32
19	70	38	57	18	70	22	54	24	.....	.....	75	40	67	44	56	19	.....	.....	76	34	77	43	62	29
20	69	42	57	25	80	28	50	20	.....	.....	77	42	65	42	39	27	.....	.....	81	35	80	46	65	30
21	69	45	51	26	79	28	52	18	.....	.....	73	43	63	40	42	29	.....	.....	80	39	76	42	70	40
22	69	44	61	24	68	28	60	19	.....	.....	77	43	63	40	47	25	.....	.....	69	38	82	46	69	36
23	71	43	64	29	72	29	58	19	.....	.....	78	46	72	50	57	25	.....	.....	79	38	82	47	70	36
24	74	45	61	25	79	26	56	20	.....	.....	79	46	69	47	62	25	.....	.....	86	39	83	49	72	26
25	73	48	56	35	73	31	52	18	.....	.....	81	53	65	42	61	32	.....	.....	85	43	80	45	75	40
26	63	53	46	28	66	35	48	16	.....	.....	70	46	53	40	57	32	.....	.....	74	58	67	48	68	40
27	56	35	32	16	35	26	36	14	.....	.....	55	42	40	32	47	23	.....	.....	56	46	62	39	58	42
28	46	29	35	17	52	35	30	8	.....	.....	63	34	43	21	35	17	.....	.....	55	32	63	43	60	31
29	49	29	41	16	46	26	26	− 1	.....	.....	63	39	49	29	36	26	.....	.....	64	33	67	35	60	29
30	56	30	50	18	54	27	32	4	.....	.....	63	37	50	38	36	26	.....	.....	62	30	72	39	60	29
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Means	65.3	42.0	51.3	18.9	67.4	26.7	49.2	21.1	.....	.....	74.7	43.8	61.2	31.1	52.1	23.1	.....	.....	74.8	39.8	76.4	44.7	66.9	34.9

Climatological Data for November, 1909.

DISTRICT No. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

November was a warm and an unusually wet month, the temperature and precipitation being above normal at practically every station. The noteworthy feature of the weather was the great amount of precipitation which occurred mostly in the form of snow, especially in the mountains.

TEMPERATURE.

The monthly mean temperature for the district as a whole was 38.6°, which was 1.2° above the normal, and ranged from 24.5° at Truckee, Cal., to 45.8° at Lovelock, Nev.

Except in the extreme southern portion of Utah and in the southern third of Nevada, the mean temperatures were above normal at all stations. The greatest excesses of temperature were confined for the most part to the northern portion of the district, although there were notable exceptions in the central portion. The greatest plus departure was 7.8° at Ely, Nev., and the greatest minus departure was 12.0° at Truckee, Cal.

The highest mean temperatures occurred in the Great Salt Lake and Utah Lake valleys and in the extreme western portion of Nevada, where a number of stations reported means of 40° and above. The lowest means of course occurred at the mountain stations, some of which were 33.6° at Kelton, Utah, 31.8° at Quinn River Ranch, Nev., and at Border, Wyo., and 24.5° at Truckee, Cal.

The month began with nearly normal temperature over the entire district. It became colder about the 5th, and this cold spell continued through the first decade. The highest temperature reported was 87° at Spanish Fork, Utah, on the 7th, and most of the other stations reported their highest temperatures during this decade. Temperatures below freezing were experienced daily at many stations, while some stations in protected valleys reported only heavy frosts.

The cold weather of the latter portion of the first decade extended into the second, and the temperature continued to fall until the 16th and 17th, on which dates the lowest temperatures for the month were generally reported. The lowest minimum temperature was 12° below zero at Christmas Lake, Oreg. Other low temperatures were 10° below zero at Elko, Nev., and 11° below at Marysville, Utah, on the 16th. After the 17th it grew warmer over the whole district and at the end of this decade nearly normal temperatures prevailed, and so continued until the middle of the last decade when colder weather set in. The minimum temperature during this last cold period dropped to zero at some stations on the 28th.

PRECIPITATION.

Unusually heavy precipitation occurred practically everywhere, there being only one station reporting a deficiency in moisture. Many stations reported twice and some many times the normal amount. In north-central Utah amounts from 4 to 6 inches were recorded which were from 1 to 3 inches above normal. In the remainder of the district the precipitation was from 0.50 to 2.50 inches above normal. The greatest monthly amount was 6.15 inches at Huntsville, Utah.

Generally fair weather prevailed for the first 5 days in the month, except in Oregon where rain fell on the 1st and 2d at a few stations. On the 5th light rains fell in Oregon, and on the 6th in California and Nevada. After this date there were two well-defined rainy periods, the first extended from the 9th to the 15th and the second from the 19th to the 27th. During the first period moderately heavy precipitation occurred on the 15th in Nevada and on the 15th and 16th in Utah. It was during the latter period, however, that the greatest daily amounts fell. At Eureka, Nev., 2.27 inches were recorded in 24 hours on the 26th.

In Nevada the precipitation was nearly double the normal amount and was the greatest on record with the exception of that in November, 1892. In Utah the mean precipitation was about 0.75 inch above the greatest previous State average, which occurred in 1906.

Snow fell at all points in the district, ranging from 1 to 44 inches. West of Lake Tahoe amounts from 38 to 44 inches were reported. In Utah in the mountains large amounts were also reported ranging from 15 to 29 inches.

MISCELLANEOUS PHENOMENA.

Thunderstorms were reported at Glen Alpine, Cal., on the 24th.

Hail was reported at Mina, Nev., on the 12th.

There was an average of 7 rainy days, 10 clear days, 7 partly cloudy days, and 13 cloudy days for the district, as a whole.

THE IMPORTANCE OF MOUNTAIN CLIMATE IN THE WEST.—THE WEATHER BUREAU AND THE FOREST SERVICE IN COOPERATION.

By E. R. HODSON, Assistant, U. S. Forest Service.

Cooperation is a somewhat recent innovation, at least in some directions, between different branches of the Government Service. It is a scheme whereby different governmental activities are rendered mutually helpful along lines common to two or more branches, thereby subserving the public interest better both as to efficiency and economy. Since it is a procedure strictly in line with modern industrial development it has a practical basis and for this reason and because of its flexibility it bids fair to have a wide field of usefulness. As a feature of governmental administration it would seem to merit further consideration.

This agency was adopted by the Weather Bureau when in July, 1908, a plan of interbureau cooperation was consummated between that Bureau, the Reclamation Service, the Forest Service, the Bureau of Plant Industry and the Water Resources Branch of the Geological Survey; early in 1909 it was further extended to include the Office of Indian Affairs. By this plan the assistance of interested parties is enlisted not only in securing climatic data, but also in advising practical measures for rendering it adaptable to general use. Besides the immediate purpose, to collect data, it should serve to arouse a keener interest in climatology. It should emphasize in particular the wide field of its practical application.

This extension of the Weather Bureau's work is especially opportune since within the last few years an impetus has been given to the desire for climatic data. The demand being largely aroused by its importance in irrigation and by those interested in the development of inland waterways, working through the Inland Waterways Commission, for a comprehensive system of interior water communication. This demand was only intensified when the Inland Waterways Commission and its objects were merged with the broader and more far-reaching movement for the conservation of natural resources.

To meet the demand from all quarters, for more data of a wider range the Weather Bureau has sought to make use of all the different govermental agencies possible, in order that the limited means at its disposal may yield the most results and secure their practical application. Hence the general plan of cooperation which has been inaugurated.

It is the purpose of this article to deal only with a few of the general features of cooperative work planned with the Forest Service.

This part of the work necessarily centers in the West, since with few exceptions the national forests are located there and it is still further localized by being confined to the higher altitudes where conditions permit forests to exist.

There may be noted here the great difference between eastern and western climate in the annual precipitation and the factors which influence its availability. The western United States west of the 100th meridian is commonly considered an arid or a semiarid region on account of its lack of rainfall. Precipitation as rainfall distributed over the whole area does not occur to the same extent it does in the East. A large amount of precipitation, however, does occur during the year but it is restricted for the most part to the mountains and falls during the winter season largely in the form of snow. In order for the snowfall to become available it must first melt and during that process it is subject to temperature and other conditions. Furthermore, before the water can be used agriculturally human agencies are necessary through irrigation. Instead of being automatically and uniformly distributed as in the East the precipitation is periodically and, where used economically, more or less artificially distributed.

It is, therefore, apparent that mountain climate in the West is of far greater importance than it is in the East, where the precipitation is more uniform in character and more equally distributed. It becomes, therefore, important to know the value of mountain snowfall in terms of streamflow, and the influence of climatic, topographic, and other factors on its seasonal distribution.

These two factors then—the variable character of the precipitation and the fact that it is localized in the mountains—make its measurement and the computations of its economic value particularly difficult and expensive. On the other hand great need for just this data has lately arisen. With the advent of forestry and vast irrigation schemes, mountain snowfall and climatic influences on streamflow have a practical bearing and the lack of accurate data on the subject is keenly felt. The mountains are sparsely settled and it is difficult to get observers at points where most needed. It is here that the Forest Service has a decided advantage as it is in a position, through its field force, to give assistance in locating stations and securing reliable observers. Since the cooperative plan has gone into effect this service is being rendered wherever possible.

From a forest standpoint, the relation to climate is twofold: first, the effect of climate upon the forest; second, the reaction of forest cover and the attendant conditions upon climate.

The influence of climatic conditions on the character, growth, reproduction, extension, and general thrift of a forest is marked. Increased information in this direction can hardly fail to be useful as well as have a high value from a scientific standpoint; but the most practical bearing of weather influences is on forest operations, such as methods of cutting, treatment of cutover areas, methods of artificial reproduction and extension of forest areas by planting, seeding, etc. In all phases of nursery work its influence is acutely felt; its annual variation is no small factor in the practical operation of forest nurseries.

As the national forests are at present administered, grazing is important both in itself and in its relation to forestry. The effect, therefore, which annual and seasonal variations of climate within western forest regions, have on the quantity and conditions of the forage is apparent. It has a practical bearing on the stock industry and on the adjustment of this interest in such a way as to best promote and conserve the primary objects for which the national forests were created.

The effect of a forest and forest conditions on climate is a complicated and much disputed question; particularly in its relation to the flow of streams is its value questioned. Many instances, however, show that the efficiency of a forest is most clearly exhibited in its relation to the seasonal distribution of streamflow and it is probable, when the opposite effect is indicated, that the areas considered are too small and that special conditions obscure the real effect. The whole question, however, needs clearing up and in accomplishing this the mountain work of the Weather Bureau promises to render valuable assistance.

The present plan of cooperation is relatively simple. According to its provisions the Forest Service aids by selecting and recommending reliable observers, and sometimes by supplying voluntary observers from its own members. All instruments are furnished by the Weather Bureau which also pays the salary of those observers who receive remuneration. Both observers and stations are subject to approval by the Weather Bureau. At the present time where a salary is paid for this work the amount is merely nominal.

There has been but a short time since this work was initiated, yet it has already been productive of good results; a number of stations have been established under the plan and some data have been accummulated. The value of the data will no doubt increase from year to year as standards are established and comparison becomes possible.

The future of the work is large, since mountain climate has been relatively little studied in detail. In its strictly scientific bearing, it promises to throw much light on general problems of meteorology; but the scientific aspect of the work is by no means without a practical bearing, since it lays the foundation for a more complete understanding of the whole subject. In the strictly practical phase of the work the opportunity is great. The need is urgent, and will necessarily increase as the country is developed. Large reservoirs and other costly engineering works in connection with irrigation projects and power plants will call for definite data as to climate and its effect on the available water supply. Also, with a more thoroughly organized and permanent equipment of the national forests increased facilities will be offered for this cooperative work. At the very beginning the work is promising, and its usefulness has been demonstrated. Greater service can reasonably be expected if sufficient recognition is received.

For the proper encouragement of the work an ample appropriation is necessary in view of the natural difficulties connected with securing data on mountain climate. It should be put on a permanent basis and provided with funds in proportion to its field of usefulness.

In the West mountain climate is the key to the situation, and this fact should be thoroughly appreciated.

The importance of this work would seem to make necessary the creation in the Weather Bureau of a special section devoted exclusively to mountain climate. This section would deal with snowfall measurement and the conditions influencing the melting and becoming available for streamflow, ground water, the loss through evaporation during the winter, and all other points in connection with it.

The water resources section, already established by the Weather Bureau, since it deals with so vital a question in the West, should be liberally supported by Congress. It should be recognized as a permanent feature of this Bureau and be provided with ample funds and corps of field observers. To make the results available, adequate provision for working up the data obtained and for its suitable publication is urgent.

TABLE 1.—*Climatological data for November, 1909. District No. 10, Great Basin.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Border	Uinta	6,085	7	31.8	+ 2.5	64	3	1	16†	49	2.50	+ 1.52	.....	.....	5	9	3	18	w.	S. W. Condron.
Evanston	do	6,860	13	34.2	+ 2.2	66	3	0	28	43	1.84	+ 1.00	0.85	5.0	5	12	7	11	sw.	Frank Tucker.
Idaho.																				
Geneva	Bear Lake	.....	2	.....	.....	.....	.....	.....	.....	.....	3.46	.....	1.92	.....	7	19	3	8	.....	F. W. Boehme.
Grace	Bannock	5,400	3	36.0	.....	66	4	6	28	40	3.15	.....	0.77	0.8	10	14	6	10	s.	E. A. Ekern.
Oxford	do	4,750	2	.....	.....	.....	.....	.....	.....	.....	6.07	.....	1.90	6.0	9	12	8	10	n.	Edwin Smith.
Paris	Bear Lake	5,946	13	35.4	+ 2.1	70[a]	2	5	16	43[a]	3.83	+ 2.70	0.75	8.5	11	16	3	11	w.	John Norton.
Stone	Oneida	4,520	2	35.6	.....	66	3	− 8	18	53	5.43	.....	1.90	.....	8	17	3	10	s.	Thos. W. Roe.
Weston	do	4,610	12	37.2	+ 0.5	66	5	8	28	43	3.90	+ 2.51	1.37	3.0	9	9	4	17	n.	Wm. T. Chatterton.
Utah.																				
Annabella	Sevier	5,250	4	.....	.....	.....	.....	.....	.....	.....	1.33	.....	0.37	18.0	9	.....	.....	.....	.....	J. W. Fairbanks.
Beaver	Beaver	6,000	6	38.4	.....	68	3†	4	16	35	2.36	.....	1.00	15.0	7	11	13	6	sw.	James Connell.
Black Rock	Millard	4,872	9	40.7	.....	71	3†	7	16	33	2.26	.....	0.66	14.0	7	13	6	11	ne.	A. H. Cassell.
Blacksmiths Fork	Cache	5,500	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Forest Service.
Card Canyon	do	5,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
Castle Rock	Summit	6,244	6	.....	.....	.....	.....	.....	.....	.....	3.63	.....	0.90	13.0	11	6	9	15	.....	David Moore.
Cedar City	Iron	5,750	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. M. Foster.
Corinne	Boxelder	4,240	39	40.0	+ 2.4	75	4	19	16	38	4.65	+ 3.68	1.49	2.0	6	6	20	4	.....	A. C. Murphy.
Coyoto	Garfield	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. E. Clayton.
Deseret	Millard	4,541	15	38.7	+ 1.8	70	2†	6	17	51	0.92	+ 0.48	0.30	2.0	5	11	7	12	s.	S. W. Western.
Enterprise (near)	Washington	4,270	1	.....	.....	.....	.....	.....	.....	.....	2.98	.....	1.92	9.5	6	12	9	9	s.	John Day.
Farmington	Davis	4,267	9	40.4	.....	66	3†	19	17	36	3.07	.....	0.85	4.0	8	15	3	12	n.	Charles Boylin.
Fillmore	Millard	5,100	19	43.4	+ 2.3	82	5	8	16	50	1.61	+ 0.70	0.50	.....	5	.....	.....	.....	.....	J. J. Starley.
Frisco	Beaver	7,318	15	39.4	− 0.3	69	1†	7	16	38	0.89	+ 0.41	0.45	.....	3	.....	.....	.....	.....	E. R. Smyth.
Garland	Boxelder	4,350	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Harry B. Shaw.
Garrison	Millard	.....	6	38.8[c]	.....	71	4	− 1	16	39	1.41	.....	0.58	.....	3	15	5	8	s.	E. M. Smith.
Golden Reef	Beaver	7,000	.....	.....	.....	.....	.....	.....	.....	.....	1.95	.....	0.70	19.5	4	.....	.....	.....	.....	D. W. Woodard.
Government Creek	Tooele	5,277	9	39.8	.....	68	2†	13	16	32	1.39	.....	0.53	4.5	6	6	6	18	s.	Walter James.
Heber	Wasatch	5,606	16	35.7	+ 0.2	70	3	5	16	50	2.86	+ 1.56	1.00	3.5	9	11	5	14	s.	John Crook.
Henefer	Summit	5,301	10	37.0	.....	72	3	8	16	51	4.64	.....	1.50	6.2	12	12	2	16	.....	Wm. Brewer.
Hoyts Canyon	do	7,400	.....	.....	.....	.....	.....	.....	.....	.....	4.48	.....	.....	.....	.....	.....	.....	.....	.....	James Woolstenhulme.
Huntsville	Weber	5,100	14	.....	.....	.....	.....	.....	.....	.....	6.15	+ 4.37	2.04	6.0	10	9	9	12	.....	Lars Petersen.
Ibapah (near)	Tooele	7,500	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. S. Gamwell.
Kanosh	Millard	5,250	1	.....	.....	.....	.....	.....	.....	.....	2.73	.....	1.30	.....	4	.....	.....	.....	.....	Geo. Crane.
Kelton	Boxelder	4,230	31	33.6	.....	65	1†	10	20	42	1.95	+ 1.65	0.55	12.0	7	0	11	19	ne.	F. W. Klock.
Levan	Juab	5,010	19	37.9	+ 1.2	67	3†	7	16	39	1.90	+ 0.98	0.83	4.2	5	12	4	14	sw.	Wm. Brown.
Logan	Cache	4,507	18	37.6	− 0.2	63	4	13	28	28	3.21	+ 2.07	1.00	3.7	9	9	4	17	n.	State Agricultural College
Lucin	Boxelder	4,504	5	35.6	.....	67	2	4	18	52	0.90	.....	0.50	.....	2	10[b]	4[b]	14[b]	.....	C. J. Burke.
Lund	Iron	5,086	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. E. Smith.
Manti	Sanpete	5,575	15	35.6	− 1.8	61	24	9	17	36	1.60	+ 0.69	0.48	3.5	7	11	0	19	.....	J. M. Anderson.
Marion	Summit	6,750	5	.....	.....	.....	.....	.....	.....	.....	3.82	.....	1.23	6.0	10	6	6	18	s.	James Woolstenhulme.
Marysvale	Piute	6,180	10	35.9	.....	71	3	−11	16	53	2.22	.....	0.90	15.9	7	11	6	13	s.	John W. Henry.
Meadowville	Rich	6,200	10	34.4	.....	61	4†	12	16	39	3.50	.....	1.20	T.	4	12	4	14	w.	J. S. Moffat.
Milford	Beaver	4,962	5	36.7	.....	70	3	− 8	16	55	1.34	.....	1.00	13.2	4	3	0	27	.....	C. M. Temple.
Millville	Cache	4,848	14	.....	.....	.....	.....	.....	.....	.....	4.81	+ 3.34	1.34	.....	12	.....	.....	.....	.....	Fred Yeates.
Minersville	Beaver	5,070	12	.....	.....	.....	.....	.....	.....	.....	1.95	.....	0.54	10.0	5	.....	.....	.....	.....	Geo. Roberts.
Modena	Iron	5,479	9	35.6	− 3.4	71	3	− 7	16	47	1.96	+ 1.05	0.80	11.7	9	10	11	9	w.	U. S. Weather Bureau.
Morgan	Morgan	5,080	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. Visick.
Moroni	Sanpete	5,519	1	.....	.....	.....	.....	.....	.....	.....	3.22	.....	1.05	2.5	10	3	25	2	sw.	B. F. Eliason.
Mount Nebo	Utah	4,650	8	40.7	.....	71	24	13	16	35	1.42	.....	0.58	3.5	7	16	4	10	s.	D. C. Walkey.
Mount Pleasant[d]	Sanpete	5,859	17	38.6	+ 0.4	70	2	12	16	42	0.36	− 0.41	0.11	2.0	5	.....	.....	.....	.....	Jane Martin.
Nephi	Juab	6,059	6	.....	.....	.....	.....	.....	.....	.....	1.47	.....	0.46	3.0	7	8	1	21	sw.	A. Madsen.
Nephi (near)	do	6,059	.....	.....	.....	.....	.....	.....	.....	.....	1.53	.....	0.90	2.5	7	12	7	11	n.	S. R. Boswell.
Oak City	Millard	4,900	5	38.4	.....	61[e]	20†	10	16	30	2.21	.....	0.77	5.0	6	12	6	12	.....	Jos. Finlinson.
Ogden (1)	Weber	4,310	8	40.7	.....	66	5	20	27	35	4.17	.....	0.97	1.0	10	13	3	14	nw.	Enoch Farr.
Ogden (2)**	do	4,310	39	44.2	+ 4.9	66	5	20	27	23	3.37	+ 2.21	0.97	T.	10	7	7	16	nw.	W. H. Chevers.
Panguitch	Garfield	6,560	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. C. Syrett.
Panguitch Lake	do	9,000	.....	.....	.....	.....	.....	.....	.....	.....	3.15	.....	2.00	29.0	3	9	9	12	n.	James E. Prince.
Park City	Summit	7,800	12	36.4	+ 1.7	66	4	4	6	44	4.80	+ 2.90	1.00	.....	11	10	7	13	.....	Irvin Evans.
Parowan	Iron	5,970	18	.....	.....	76	2	1	15	49	0.94	+ 0.32	0.36	9.1	6	.....	.....	.....	.....	Scott Matheson.
Payson	Utah	4,637	6	.....	.....	.....	.....	.....	.....	.....	3.42	.....	0.81	11.0	8	9	6	15	sw.	D. L. Coombs.
Pinto	Washington	5,907	12	35.4[b]	.....	70[b]	3†	− 8[b]	15	52	3.50	+ 2.39	1.40	.....	3	15	7	8	n.	John H. Harrison.
Promontory	Boxelder	4,913	38	.....	.....	.....	.....	.....	.....	.....	2.54	+ 2.02	0.80	18.0	9	.....	.....	.....	.....	F. C. Houghton.
Provo	Utah	4,532	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	James A. Oliver.
Randolph	Rich	6,442	6	.....	.....	.....	.....	.....	.....	.....	2.12	.....	1.30	.....	6	9	7	14	sw.	Wm. Rex.
Richfield	Sevier	5,350	19	38.8	+ 1.5	72	4†	0	16	52	2.03	+ 1.73	0.65	14.0	5	17	0	13	sw.	Joseph J. Jensen.
Richins Summit	Summit	6,500	.....	.....	.....	.....	.....	.....	.....	.....	4.81	.....	1.55	9.0	12	.....	.....	.....	.....	Ernest H. Brewer.
Saltair	Salt Lake	4,220	6	42.1	.....	65	9	24	16†	21	2.14	+ 1.11	0.73	1.0	9	.....	.....	.....	.....	E. J. Bench.
Salt Lake City	do	4,366	35	44.0	+ 3.6	69	5	24	16	26	1.46	+ 0.04	0.40	4.2	7	8	5	17	se.	U. S. Weather Bureau.
Scipio	Millard	5,260	14	38.4	+ 1.7	75	3	− 7	16	58	2.66	+ 1.51	0.81	8.0	8	8	5	17	sw.	Thos. Memmott.
Silver Lake	Salt Lake	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. S. Fetherolf.
Soldier Summit	Utah	7,474	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, D. & R. G. Ry.
Spanish Fork Canyon	do	.....	.....	43.5	.....	87	7	17	16	57	2.63	.....	1.00	.....	7	17	3	1	.....	U. S. Reclamation Service
Thistle	do	5,075	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, D. & R. G. Ry.
Tooele	Tooele	4,900	13	41.7[a]	+ 1.9	80	3	17	27†	46	2.12	+ 0.59	0.55	.....	9	3	11	16	nw.	E. A. Bonelli.
Utah Lake Pump'g Sta.	do	4,500	4	39.1	.....	67	20	18	15†	39	1.26	.....	0.62	2.5	6	14	7	9	.....	W. A. Knight.
West Canyon	Tooele	7,800	....	.....	.....	.....	.....	.....	.....	.....	1.70	.....	0.60	7.5	4	.....	.....	.....	.....	Walter James.
Oregon.																				
Ana River	Lake	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Curtis Duvall.
Burns	Harney	4,157	19	37.2	+ 3.1	59	1	5	14	30	2.95	+ 1.47	0.89	1.0	10	10	7	13	w.	J. C. Welcome, jr.
Burns Mill	do	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John P. Sayer.
Cecils Ranch	do	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. D. Cecil.
Christmas Lake	Lake	.....	1	40.4	.....	66	3	−12	15	44	2.50	.....	0.57	4.5	16	0	7	23	sw.	John C. Green.
Paisley	do	4,500	5	41.2	.....	65	2	11	15	26	2.06	.....	0.59	4.0	14	16	2	12	sw.	E. C. Woodward.
"P" Ranch	Harney	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. M. Byrd.
Silver Lake	Lake	4,700	14	38.6	+ 1.9	70	3	− 4	15	....	3.28	+ 2.46	0.85	1.0	10	11	6	13	w.	E. K. Henderson.
California.																				
Truckee	Nevada	5,819	38	24.5	−12.0	46	22	2	16	28	2.76	+ 0.44	1.20	26.5	6	11	6	13	sw.	Agent, So. Pac. Co.
Nevada.																				
Austin	Lander	6,594	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. F. Wiseman.
Battle Mountain	do	4,843	39	39.5	+ 0.8	78	2	5	12†	56	.....	.....	.....	.....	.....	10	10	10	w.	Agent, So. Pac. Co.
Beowawe	Eureka	4,905	39	35.6	− 1.3	85	5	5	11†	67	3.02	+ 2.46	0.90	5.0	7	11	8	11	se.	Do.
Carlin	Elko	5,232	39	36.4	+ 2.9	79	3	− 3	15	65	2.95	+ 2.62	0.60	8.5	13	15	0	15	.....	Do.
Carson Dam	Churchill	4,032	3	42.4	.....	68	1†	9	16	38	0.64	.....	0.41	5.2	3	9	7	14	w.	U. S. Reclamation Service
Cherry Creek	White Pine	6,450	1	38.8	.....	69	3	4	28	68	2.69	.....	1.16	7.8	8	9	13	8	sw.	J. H. Leishman.
Clover Valley	Elko	6,000	10	37.8	.....	68	2	8	16	41	3.75	.....	2.95	5.0	9	9	4	17	.....	J. F. Wiseman.
Cobre	do	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, So. Pac. Co.

TABLE 1.—*Climatological data for November, 1909. District No. 10*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Nevada—Cont'd.																			
Columbia	Esmeralda	5,750	3	39.2	.....	69	2†	5	16	37	1.28	.....	0.72	17.0	5	16	8	6	se.	A. Booth.
Dutton	Elko	5,100	2																	Goleonda Cattle Co.
Elko	do	5,342	39	32.6	— 1.2	70	3	—10	16	56						10	6	14	e.	Agent, So. Pac. Co.
Ely	White Pine	6,421	19	41.9	+ 7.8	71	24	6	28	39	1.20	+ 0.35	0.40	4.2	5	21	3	6	w.	G. C. Hunting.
Eureka	Eureka	6,500	7	37.4		69	3	4	16†	38	3.53		2.27	30.0	8	9	5	16	n.	Clay Simms.
Fallon	Churchill	3,965	5	42.4	+ 2.7	70	2	12	16	42	0.71	+ 0.53	0.23	3.7	5	15	4	11	w.	U. S. Reclamation Service
Fernley	Lyon	4,200	2	42.0	+ 2.5	70	3†	— 1	16	39	1.54	+ 1.17	1.20	11.0	2	10	12	8	w.	Do.
Gardnerville	Douglas	4,830	10	43.4		73	3	17	16	48	3.82	.....	1.60	12.1	5	6	13	11	e.	William Dangberg.
Geyser	Lincoln		5	35.2		61	9	5	30	48	1.05			10.5	5	10	15	5	s.	Mrs. J. F. Wambolt.
Golconda	Humboldt	4,697	31	44.4	+ 3.9	71	2	11	16	43	1.00	+ 0.63	0.40	5.0	5	3	8	19	nw.	Agent, So. Pac. Co.
Halleck	Elko	5,631	17	32.2	.....	71	1	0	23†	47	.....	.....	.....	3.5	4	.....	.....	.....	.....	Do.
Hamilton	White Pine	7,977	3																	George Allen.
Humboldt	Humboldt	4,236	39																	Agent, So. Pac. Co.
Jean	Clark	2,074	2	50.3	.....	83	3	23	17	53	0.67	.....		0.0	.....	24	0	6	sw.	Agent, Salt Lake Route.
Leetville	Churchill	4,020	3	42.6	.....	72	3	9	16	44	0.75	.....	0.65	5.0	2	16	5	9	n.	U. S. Reclamation Service
Lewers Ranch	Washoe	5,500	22	42.0	+ 1.6	69	3	7	16	36	5.05	+ 1.75	1.95	13.0	9	7	13	10	.....	Ross Lewers.
Lovelock	Humboldt	3,977	17	45.8	+ 3.8	78	8	12	16†	52	0.66	+ 0.46	0.25	.....	8	.....	.....	.....	.....	John S. Case.
McAfees Ranch*	Esmeralda	4,835	6	44.8	.....	86	20	16	7	70	0.57	.....	0.35	2.5	2	9	0	21	n.	G. A. McAffee.
Millett	Nye		2	36.2	.....	70	2†	— 6	16	50	1.46	.....	0.40	6.0	6	13	4	13	w.	Fred J. Jones.
Mina	Esmeralda	4,600	3	43.4	.....	72	1†	17	15	42	0.42	.....	0.20	3.0	3	13	5	12	sw.	Agent, So. Pac. Co.
Palmetto	do	6,780	20																	Isaac McConnell.
Potts	Nye	6,990	17	31.8	— 3.0	65	3	—10	27	42	0.77	+ 0.30	0.30	12.0	5	7	5	18	s.	Miss Mamie Potts.
Quinn River Ranch	Humboldt	4,850	8	39.5a		73a	2	6a	16	37a	0.68		0.41		7				sw.	F. M. Payne.
Reno	Washoe	4,532	39	41.1	+ 0.1	72	3	5	16	40	1.30	+ 0.21	1.11	12.3	7	7	13	10	w.	U. S. Weather Bureau.
Soda Lake	Churchill	4,534	3	41.5		69	30	6	16	35	0.80		0.40	6.0	4	8	15	7	w.	U. S. Reclamation Service
Tecoma	Elko	4,812	32	35.6	+ 1.6	65	4	4	15†	45	2.10	+ 1.68	0.10	3.0	4					Agent, So. Pac. Co.
Tonopah	Nye	6,090	3	39.5		66	2	16	27	23	2.39	.....	0.99	23.0	7	12	12	6	se.	U. S. Weather Bureau.
Wabuska	Lyon	4,347	7	41.4		68	23	9	27	47	0.85	.....	0.30	3.0	3	10	17	3	ne.	J. G. Young.
Wells	Elko	5,631	38	36.8	+ 3.2	65	7	0	16†	48				2.0		8	6	16	sw.	Agent, So. Pac. Co.
Winnemucca	Humboldt	4,432	31	40.2	+ 2.7	71	3	12	16	45	1.85	+ 1.11	0.51	5.6	10	5	8	17	sw.	U. S. Weather Bureau.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§ § Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖ ‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 10, Great Basin.*

Stations.	River basins.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																																	
Border	Bear	T.								T.	T.	T.									*	*	1.70	.22	.10		.38	T.			.10		2.50
Evanston	do									T.	.26	T.			T.						.44	.85			.05		.24						1.84
Idaho.																																	
Geneva	Bear																			1.92	.52	.17	.09	.14			.57				.05		3.46
Grace	do						T.			.04	.02			T.	T.	T.				.03	.65	.27	.39	.16	.05	.77	.77	T.			T.		3.15
Oxford	do									.15	.25				.08					.15	1.90		1.60	.28	T.	.68	.98						6.07
Paris	do										.10				.12	.14				.70	.50	.75	.50	.38	.07	.30	.27						3.83
Stone	Deep Creek						T.			1.16	T.								T.	.26	1.90	.47	.68	.10	.85						.01		5.43
Weston	Bear									.75	.03									05	.54	.45	.13	.08		.50	1.37						3.90
Utah.																																	
Annabella	Sevier	.01									.05	.08	.12	.14	.15	.16											.25	.37					1.33
Beaver	do									.42	T.	.05		*T.	.05	1.00				T.		.04					.60	.20					2.36
Black Rock	do																																
Blacksmiths Fork	Bear																																
Card Canyon	do																																
Castle Rock	Weber									.45	.40	.05	.05	.03	.02						.90	1.30	.12	.11				.20					3.63
Cedar City	Desert									.59	.07	.05	T.	T.	.25	.36											.66	.28					2.26
Corinne	Bear						.90			.10			.10								.88		1.18				1.49						4.65
Coyoto	Sevier																																
Deseret	do									.27					.07	.25						T.					.30				.03		0.92
Enterprise (near)	Desert									*	1.92			.28													*	.78					2.98
Farmington	Great Salt Lake									.25	.45				.02						.70	.85	.30	.20			.30						3.07
Fillmore	Sevier									.29			T.		.20	.50											.20	.42					1.61
Frisco	Desert									.36						.45												08.					0.89
Garland	Bear																																
Garrison	Desert									.50	T.				.58												*	.33					1.41
Golden Reef	do									.30					.65	.70											.30						1.95
Government Creek	do										.25			T.	.25	.10					T.	.53			T.	*	.20	.06					1.39
Heber	Jordan									.25	.50				.15	.05					.50	1.00	.06		.15		.20						2.86
Henefer	Weber									T.	.75	.22		T.	.11	.05				T.	1.50	1.13	.11	.08	.07		.45	.10			.07		4.64
Hoyts Canyon	do																																4.48
Huntsville	do									.86	.44				.13					1.26	2.04	.16	.66		.11	.28	.21				T.		6.15
Ibapah (near)	Desert																																
Kanosh	Sevier									.41						1.30						.04					.98						2.73
Kelton	Great Salt Lake									T.	T.			*	.30	.20								.20	.25	.55	.15				.30		1.95
Levan	Sevier									.83					.12	.22						.32					.41						1.90
Logan	Bear									.65	.06										.61	.56	.01	.01		1.00	.30				.01		3.21
Lucin	Desert									T.	T.	T.		T.	T.					T.		.40	T.				.50	T.					0.90
Lund	do																																
Manti	Sevier									.31		.06			.08	.22					T.	.23					.22	.48					1.60
Marion	Weber									.50	.65	.32			T.	T.					.50	1.23	.22	T.	.17		.19				.04		3.82
Marysvale	Sevier									.23	.08	.03	T.	T.	.90	.82						T.					.08	.08					2.22
Meadowville	Bear								*	*	*	.50		T.						T.		1.20			.80		1.00						3.50
Milford	Sevier					.02									1.00	.30												.02					1.34
Millville	Bear									.62	.55	.04								.02	.88	.75	.41	.08	.04	.02	1.34	.06			T.		4.81
Minersville	Sevier									T.	.51	T.				.10	.40										.54	.40					1.95
Modena	Desert									.53	.06	.04	.03	.20	.20	.67	.02										.31	.10					1.96
Morgan	Weber																																
Moroni	Sevier	.04								.38	.48	.03	T.		.08	.10					T.	1.05	.08		T.		.67	.11					3.22
Mount Nebo	Jordan									.58	.18				.02	.08						.26	.06				.12	.18					1.42
Mount Pleasant	Sevier									.10		.05			T.							.03					.11				.07		0.36
Nephi	Jordan									.46	.31				.08	.20						.21					.11	.10					1.47
Nephi (near)	do									*	.90				.10	.15						.20					*	.18					1.53
Oak City	Sevier																																
Ogden (1)	Weber									.27	.82	.21			.07						.29	.97	.35	.11			.95	.13					4.17
Ogden (2)	do									.27	.82	.21			.07						.29	.97	.35	.11			.15	.13					3.37
Panguitch	Sevier																																
Panguitch Lake	do									.50					*	2.00											.65						3.15
Park City	Weber									.70	.40				.25	.32					.20	1.00	.28		.40	.85		.20			.20		4.80
Parowan	Desert									.03			.10		.35	.36												.05	.05				0.94
Payson	Jordan									.70	.40				.15	.48					.03	.81	T.				.70	.15					3.42
Pinto	Desert									1.30					.80												1.40						3.50
Promontory	Great Salt Lake					.30								.13							.04	.03	.03	.04	.40	.60	.30						2.54
Provo	Jordan																																
Randolph	Bear								T.	.22	T.			T.		T.	T.			T.	1.30	.35	.06	T.	T.		.15	.04					2.12
Richfield	Sevier									.15	.55				.15	.65											.53						2.03
Richins Summit	Weber									.78	.25		T.	.12	.03				T.	1.55	1.15	.10	.08	.07	.46	.12		T.		.10		4.81
Saltair	Great Salt Lake									.20	.24	.04			.05							.73	.04	.03			.72	.09		T.			2.14
Salt Lake City	Jordan									.30	.12			T.	.06						.40	.18	.08	T.	T.	T.	.30				.02		1.46
Scipio	Sevier									.38	.81	.07		T.	.21	.52	.19					.22						.26					2.66
Silver Lake	Jordan																																
Spanish Fork Canyon	do									.66	.31				*	.15					.07	1.00					.24	.20					2.63
Thistle	do																																
Tooele	Great Salt Lake									.40	.21	.01			.08	.07					T.	.48	.06				.55	.26					2.12
Utah Lake Pump'g Sta.	Jordan									.32	T.			.15							.10	.62			.02		.05						1.26
West Canyon	Desert									*	.35			*	*	.45				*	.60						*	.30					1.70
Oregon.																																	
Ana River	Interior Drainage	.07				.17				.03	T.	.02		.03						.28	.83	.17	.44	.64	.16						.10		2.99
Burns	do	.02				.15			.36		.20								.13	.52		.89	.48	.08	.12								2.95
Burns Mill	do					.30				.32		.35		T.	T.						.25	.75	.80	.50	.35					.45			4.07
Cecils Ranch	do																																
Christmas Lake	do	.07	.01			.21	.03		T.	.03	.01	.08		.13						.10	.45	.09	.57	.48	.12		.04				.10		2.50
Paisley	do	.02				.20	.01			.01	.01	.02		.11	.13					.25	.36	.59	.14	.19	.02								2.06
" P " Ranch	do																																
Silver Lake	do					.20	.30							.05						.20	.85	.15	.62	.66	.15						.10		3.28
California.																																	
Boca	Truckee						.31			.10	.60	.10	.15	.45	.15					.20	.98	1.23	.31	T.	.49	.51	.20				T.		5.78
Bodie	East Walker								1.10	.31	.14	.30	.15	.12	.65						*	.49					.25						3.51
Bridgeport	do																																
Donner Ice Camp	Truckee																																
Fales Hot Springs	West Walker						.09			.70	.30	.30			.20						.16					1.76	.10						2.31
Hobart Mills	Truckee					*	.30			.55	.60	.01	.06	.07	.60					.33	.70	1.09	.12	.05	.30	.10					.02		5.90
Lundy	East Walker								T.	1.00										*	*	1.50				.90							3.40
Marklesville	Carson						.10			.90	.60	.30	.38	.02	.55					.60	.30				.78	.54	.09				T.		5.16
Shields Ranch	West Walker																																
Silver Creek	Carson						.23			.90	.95	.40	.52	.06	.45					.72	.35				.76	.60	.10				T.		6.04
Tahoe	Truckee						.35			1.30				*	.60					.35	1.52	1.10		1.08		.40					.83		7.53
Truckee	do						T.			.01	.60	.80		.05	1.20					.10		T.			T.	T.							2.76
Nevada.																																	
Austin	Reese																																
Battle Mountain	Humboldt																																
Beowawe	do						.20			.65		.50									.13				.52	.12					.90		3.02
Buckskin	Walker						T.			T.	T.	.07	.09	.10	.15						.08					T.							0.49
Carlin	Humboldt						.20		.30	.10	.20	.20	.10						.10	.20	.40	.10				.60	.05				.40		2.95

TABLE 2.—*Daily precipitation for November, 1909. District No. 10*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Nevada—Cont'd.																																	
Carson Dam	Carson						.08					.15		T.	.41											T.							0.64
Cherry Creek	Humboldt									.42	.06			.04	.02						.06	.55				.38	1.16	T.					2.69
Clover Valley	do						.04			T.	.30				.03					.20	2.95	1.51	.20			.12	.40				T.		5.75
Cobre	do																																
Columbia	Desert									.26		.08			.03											.72	.19						1.28
Dutton	Humboldt																																
Elko	do																																
Ely	do									T.					.10					T.		.30		.20	.20			.40			T.		1.20
Eureka	do						.09			.35	T.	.25		.02	.20	T.					.15	T.				.10	2.27				.10		3.53
Fallon	Carson						.14			.03	T.	.20	T.		.23											.11					T.		7.10
Fernley	Truckee						T.			T.	T.	.34		T.	1.20					T.													1.54
Gardnerville	Carson					T.				.01	.01		1.60			1.60					T.	.60				T.							3.82
Geyser	Humboldt						*	*	.80														*	.25									1.05
Glenbrook	Truckee							*	.20					*	.80					.60	.25		.30			.50	.20			.50	.20		3.55
Golconda	Humboldt									.20	.10	.20									.10	.40											1.00
Halleck	do																																
Hamilton	do																																
Humboldt	do																																
Jean	Desert																																‡0.67
Leetville	Carson											.10			.65																		0.75
Lewer's Ranch	Truckee						.20				*	*	1.20	*	1.00					*	1.95					.70					T.		5.05
Lovelock	Humboldt						.15	.12			.01	.02	.01								*	.25			.10								0.66
McAfee's Ranch	Desert											.35															.22						0.57
Millett	Reese									.20				.25	.25						.31	.40									.05		1.46
Mina	Desert									.12		.10			.20											T.							0.42
Mount Rose Ranch	Truckee					.20			T.	T.	T.	.10	.30	.15	1.75					T.	1.05		T.	T.	T.	T.					T.		3.55
Palmetto	Desert																																
Paradise Valley	Little Humboldt																																
Potts	Reese									.05	T.	T.	.02	T.	T.						T.	.15				.25	.30						0.77
Quinn River Ranch	Humboldt						.02			.15		T.		.04							.02	.41	.02			.02							0.68
Reno	Truckee					T.	.01			.01	T.	.09	T.	.54	.57					T.	.05	T.		T.	T.	.03					T.		1.30
Smith	West Walker	T.		T.					.12			.41		.03							.09				T.	T.							0.65
Soda Lake	Carson						.10					.10		.40	.20							T.				T.							0.80
Sweetwater	East Walker											*	.30	.20	.15																		0.65
Tecoma	Humboldt											1.00		1.00												.03	.05						2.10
Tonopah	Desert									.38		.60	.20	.02	.20							T.				.63	.36						2.39
Wabuska	Walker						.25					.30	T.	T.	.30											T.							0.85
Wells	Humboldt																																
Willow Point	Little Humboldt																																
Winnemucca	Humboldt					T.	T.			.19	.20	.24		.28	.02					.13	.40	.15	T.	T.	T.	.11	T.				.13		1.85
Yerington	Walker																																

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 10, Great Basin.*

Date.	Wyoming.				Weston, Idaho.		Utah.																		Burns, Oreg.		Elko, Nev.	
	Border.		Evanston.				Corinne.		Deseret.		Government Creek.		Marysvale.		Modena.		Ogden (1).		Parowan.		Provo.		Salt Lake City.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	50	25	50	23	55	31	64	28	66	21	62	34	67	17	66	23	57	36	59	25	68	27	60	37	59	39	60	21
2	56	20	61	24	61	30	66	31	70	24	68	37	69	19	68	25	62	39	76	36	74	26	65	42	56	40	69	21
3	64	16	66	24	63	28	73	35	70	23	65	38	71	18	71	24	62	37	75	24	73	25	64	42	54	38	70	20
4	63	14	62	19	64	21	75	38	69	18	68	36	70	19	69	26	63	39	73	32	75	24	64	42	50	42	69	13
5	63	14	61	22	66	27	73	29	69	35	65	41	70	28	64	30	66	31	74	30	71	24	69	50	46	23	67	15
6	50	14	54	18	50	32	72	30	65	35	54	41	67	28	58	26	54	44	74	28	70	23	57	41	50	26	60	36
7	52	18	50	17	49	24	68	35	59	19	51	26	66	23	56	18	54	31	73	24	63	22	56	34	49	31	52	22
8	49	26	60	20	55	25	70	38	64	30	62	33	69	28	63	23	58	35	67	30	70	28	66	40	55	36	56	30
9	56	18	53	36	65	36	59	27	56	35	57	33	68	35	54	33	58	42	60	35	61	41	61	39	50	32	58	29
10	46	24	36	23	44	30	56	29	50	32	58	34	47	27	42	29	42	33	55	30	49	33	45	36	45	15	52	20
11	37	13	36	13	43	25	45	29	48	24	44	16	43	17	38	25	39	31	48	25	51	28	45	33	37	16	35	− 1
12	38	6	35	9	43	23	43	26	44	21	38	18	40	18	39	25	41	31	42	23	48	23	43	29	44	22	41	− 1
13	31	5	32	5	33	22	40	25	43	20	36	21	40	16	35	22	37	25	40	20	49	25	41	28	40	20	37	− 2
14	31	21	27	6	32	25	36	20	38	18	36	21	41	20	32	11	37	30	38	10	48	30	42	29	35	5	37	− 7
15	28	4	28	14	34	19	40	22	38	25	33	24	30	12	29	2	36	27	36	1	37	27	37	28	39	9	36	− 3
16	34	1	30	10	39	17	42	19	37	9	38	13	20	−11	25	− 7	38	24	38	7	32	17	44	24	17	19	34	−10
17	40	1	38	5	42	18	45	23	32	6	40	15	27	−10	27	− 2	42	24	39	10	46	15	45	26	40	26	43	− 3
18	42	10	44	12	43	21	40	21	38	10	51	20	32	− 3	38	5	44	27	40	12	55	19	49	28	46	34	46	− 2
19	47	24	46	26	46	32	42	24	40	16	48	37	41	4	47	20	50	30	44	11	50	26	58	32	47	39	48	3
20	46	30	42	34	57	37	45	21	60	32	62	43	61	27	53	32	56	42	48	12	57	45	64	45	48	32	61	32
21	44	32	35	32	46	35	48	20	58	38	52	40	52	36	54	33	45	40	59	13	50	40	51	43	53	40	48	28
22	45	32	43	30	49	37	36	20	59	30	51	34	56	26	59	32	48	40	63	30	53	30	55	40	56	45	52	32
23	47	38	49	38	53	46	52	24	66	34	62	44	64	28	64	34	55	46	61	33	65	36	63	50	54	34	60	36
24	50	35	50	36	59	45	60	42	58	41	55	42	66	27	58	34	55	48	62	29	57	43	58	48	50	30	57	28
25	50	33	50	32	49	37	55	39	63	41	54	43	61	37	56	33	53	43	60	29	59	34	59	43	45	28	60	24
26	42	31	46	34	41	31	48	40	50	35	53	32	52	35	48	31	44	32	61	31	54	30	52	31	40	14	50	21
27	31	16	34	12	36	13	49	25	37	25	33	21	37	25	33	20	33	20	65	21	38	25	35	25	46	24	43	5
28	34	9	35	0	35	8	42	26	40	14	32	14	35	20	34	17	35	23	50	15	40	17	39	26	45	21	41	1
29	36	14	45	8	38	12	44	21	39	17	38	17	42	13	37	19	37	29	45	10	43	18	42	26	44	26	42	7
30	40	19	37	18	33	16	37	25	48	20	40	15	50	20	49	25	37	26	48	21	38	22	40	30	46	20	49	8
31																												
Mns	44.7	18.8	44.5	20.0	47.4	27.0	52.2	27.7	52.5	24.9	50.2	29.4	51.8	20.0	48.9	22.3	47.9	33.5	55.7	22.2	54.8	27.5	52.3	35.7	46.9	27.5	51.1	14.1

Date.	Nevada.																									
	Ely.		Eureka.		Fallon.		Jean.		Lovelock.		Millett.		Mina.		Quinn River Ranch.		Reno.		Tecoma.		Tonopah.		Winnemucca.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1	68	38	60	32	68	35	70	27	.....	.....	67	24	72	31	66	45	65	40	58	20	60	41	64	38		
2	66	36	61	34	70	30	74	31	.....	.....	70	21	72	30	73	44	72	33	60	22	66	43	69	30		
3	66	40	69	34	69	27	83	30	.....	.....	70	20	67	32	.....	.....	72	32	62	22	65	48	71	26		
4	69	34	68	33	68	26	80	36	.....	.....	60	11	67	22	.....	.....	68	32	65	20	62	45	66	23		
5	63	32	62	34	68	26	71	31	.....	.....	65	20	60	38	.....	.....	61	32	62	18	58	41	65	24		
6	65	31	54	33	68	39	81	37	.....	.....	56	39	62	24	59	32	54	31	58	17	52	41	54	26		
7	70	40	52	23	56	28	73	43	.....	.....	54	15	65	35	53	18	60	26	60	17	55	40	51	23		
8	63	37	52	38	61	28	72	40	78	.....	61	29	63	39	60	23	66	29	54	18	57	40	64	33		
9	62	32	50	29	60	42	80	45	.....	.....	53	34	53	29	52	38	48	37	56	22	49	31	48	33		
10	61	33	40	21	52	29	59	36	.....	.....	50	26	45	25	48	31	47	32	57	20	38	29	44	32		
11	56	19	35	19	42	25	59	31	.....	.....	55	10	41	27	44	24	39	28	52	22	35	22	34	29		
12	53	21	31	14	40	29	58	37	.....	.....	55	11	39	23	46	25	41	29	46	17	28	19	40	17		
13	48	16	35	12	37	29	60	28	.....	.....	31	12	38	22	33	27	38	27	44	12	29	29	35	26		
14	42	16	35	15	33	21	60	30	.....	.....	36	14	44	21	41	21	32	22	42	10	25	18	36	23		
15	44	18	33	12	34	16	56	28	.....	.....	32	− 1	42	17	41	10	30	8	42	4	28	17	39	15		
16	42	7	39	4	36	12	54	33	.....	12	20	− 6	50	22	43	6	28	5	42	4	31	18	40	12		
17	54	15	51	13	43	19	62	23	.....	.....	33	− 1	54	26	50	19	38	11	44	17	46	25	46	24		
18	60	22	52	34	51	23	67	26	.....	.....	33	0	56	32	52	19	47	17	42	17	50	35	52	24		
19	58	32	54	30	64	32	68	32	.....	.....	52	13	63	37	.....	.....	58	41	47	20	51	40	57	37		
20	59	34	59	40	67	51	68	29	.....	.....	62	40	65	48	61	48	61	48	56	24	55	39	57	46		
21	60	36	53	39	60	43	68	39	.....	.....	55	43	66	34	52	38	55	46	52	30	52	38	52	43		
22	62	31	55	36	68	43	68	37	.....	.....	61	39	68	29	61	41	61	49	56	32	57	41	60	48		
23	62	33	62	35	67	42	72	37	.....	.....	66	41	65	38	65	51	60	47	62	28	59	42	61	50		
24	71	35	59	38	65	48	73	38	.....	.....	63	43	60	40	63	.....	60	46	60	22	53	41	58	46		
25	60	29	52	32	58	41	74	33	.....	.....	52	39	51	31	.....	.....	46	35	56	18	44	30	47	32		
26	56	21	46	35	44	31	74	43	.....	.....	41	30	41	29	34	.....	40	24	52	20	32	19	39	23		
27	51	32	32	8	43	17	65	28	.....	.....	33	18	59	21	43	12	44	19	46	12	26	16	41	18		
28	31	6	34	4	46	19	59	26	.....	.....	41	11	61	24	50	21	51	23	48	10	36	23	46	22		
29	39	10	45	10	50	21	57	28	.....	.....	45	20	64	26	46	18	56	23	52	16	45	32	48	25		
30	46	20	50	25	59	28	64	28	.....	.....	58	26	60	39	47	26	60	38	54	16	50	40	50	32		
31																										
Means	56.9	26.9	49.3	25.5	54.9	30.0	67.6	33.0	.....	.....	51.0	21.4	57.1	29.7	51.3*	27.7*	51.9	30.3	52.9	18.2	46.5	32.5	51.1	29.3		

Climatological Data for November, 1909.

DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. MCADIE, District Editor.

GENERAL SUMMARY.

November, 1909, was the rainiest November for five years in California, also the coldest November, considering the State as a whole, since the present method of determining State averages has been in use. Rain fell on 12 days as a general average, though in some portions of the State the number of rainy days reached 21. The rain was well distributed geographically and also in frequency and intensity. Comparing the present November with past months of the same name for 60 years, it appears that 32 of these Novembers were of a different character, being drier and presumably warmer. Our temperature records are not as complete as the rainfall records. On the other hand, there are 13 well marked wet Novembers in which the rainfall far exceeded that of the present year. It is an interesting fact that there has been no excessively wet November for the past 24 years.

Some of the noteworthy features of the weather during the month were as follows: Unusually warm weather prevailed in southern California on the 2d and 3d. At Los Angeles temperatures of 92° and 94° occurred and at San Diego 80° and 86°. On the 9th the first rain exceeding 0.02 inch in amount since March 27 fell at San Diego. This was the longest period without rain of consequence in the history of the station. On November 12 frost warnings were issued for the northern counties of California and for the southern counties back from the coast. The forecasts were handsomely verified, but the particular point of interest is that this was unusually early in the season for such low temperatures. Again on November 15 and 16 heavy frosts occurred. On November 18 there was a rapid rise in temperature in southern California and in southern Nevada, probably due to foehn wind conditions. It is interesting to note that at the same time chinook conditions prevailed in other portions of the Pacific slope. On November 22 in the Salinas Valley the heaviest earthquake shock since April 18, 1906, occurred. The snowfall in the mountain sections was both early and heavy. At the close of the month there were 4 inches on the ground at Summit, 5 inches at Fordyce Dam, and 22 inches at Tamarack. The warm rains removed much of the November snowfall. There was rather more fog than usual along the coast and less tule fog in the valleys. The winds alternated between brisk to high southeast and moderate northeast. No especially high velocities were reported.

TEMPERATURE.

The monthly mean temperature for the State was 50.7°, which is 1.3° below the normal. The highest monthly mean was 61.8° at Indio. The lowest monthly mean was 29.2° at Tamarack. The highest temperature was 100° at Escondido on the 2d, and the lowest was −8° at Tamarack on the 15th. The greatest daily range was 69° at Escondido on the 3d.

PRECIPITATION.

The average precipitation for the State was 4.52 inches, or 0.98 inch above the normal. The greatest monthly amount was 39.73 inches at Monumental and the least zero at Bagdad. The greatest 24-hour rainfall was 9.60 inches at Monumental on the 22d. The greatest snowfall was 116 inches at Tamarack and the next 61 inches at Fordyce Dam. The report from Summit for November has not yet been received.

THE PROBLEM OF THE SACRAMENTO.

The most important question connected with hydraulic engineering in California is that of the reclamation of the swamp and overflowed land in the Great Valley of California. The problem has been before the people of the State in one form or another since the great flood of 1868, due to the abnormally heavy rainfall of December, 1867 (12.85) inches, and of January, 1868 (6.04 inches). Each recurring flood has called the attention of the press and the public to the need of general concerted action, both to protect the large interests now jeopardized and also to conserve for future use the large volume of water wasted in these destructive run-offs. Many exhaustive reports have been presented and numerous efforts have been made by public bodies to obtain both State and Federal aid for the betterment of existing conditions. One of the most valuable contributions to the subject has been the general discussion of the problem as undertaken by the Commonwealth Club of San Francisco, an organization of about 1,000 professional and business men. The general discussion has now extended over a period of nearly six years. Perhaps the best synopsis of the whole matter is contained in a report by Mr. Edwin F. Adams, published in September, 1909. The substance of this report was presented in May, 1904, and was the first formal presentation of the subject in available form for students and engineers. The floods of March and April, 1904, an account of which can be found in the Monthly Climatological Summary, California Section, of those dates, enabled Mr. Adams to secure the active assistance of many engineers and property owners interested in the subject. It will convey some idea of the scope of Mr. Adams's work to say that he refers to the 90 or more statutes of the legislature relative to swamp and overflowed lands and 54 sections of the code, has read all the official and other reports, studied all maps available, and has personally visited at times of low water and high water the overflowed section. The following extract from the paper shows the area of the swamp land involved:

> As a result of the Federal Act of 1850 there was granted to the State of California from one and three-quarters to two million acres of swamp land, or from 2,300 to 3,100 square miles (Marsden Manson, Vol. 5, Transactions of the Technical Society of the Pacific, 1888, page 85). Of these only those in the Sacramento and lower San Joaquin valleys lying about Collinsville in Solano County, and New York Landing in Contra Costa County, are factors in what may be called the problem of the Sacramento. They embrace the islands in the Sacramento and San Joaquin, the adjacent swamp lands, and the lands of the five "Basins." As this paper will not in any way deal with questions of engineering, it may perhaps be stated here for the benefit of those not familiar with the subject that the Sacramento River never did and probably never can be made able to carry within its natural bed the waters poured into it in seasons of normal and greater than normal rainfall. Like other sediment-carrying streams flowing through the lowlands, the river by ages of overflow built up along its banks above the delta a strip of land higher than the land farther away from the stream, but at certain points, determined by natural causes, there were and are depressions in these banks through which the floods pour into the lowlands beyond, remaining there until, by slow drainage as the high waters recede and permit it, they find their way back into the river at a lower point. The depressions in which these overflow waters lie during a great part of the summer are known as "basins," including the Yolo, or Yolo-Solano, Basin (mean elevation above low water in Suisun Bay, 12 feet); American Basin (mean elevation, 20 feet); Sutter Basin (mean elevation, 22 feet); Colusa Basin (mean elevation, 35 feet); Butte Basin (mean elevation, 65 feet). Elevations estimated by Grunsky, quoted by Manson. (Transactions Technical Society, Vol. V, page 88.). Some of this land is too low to admit of complete drainage by gravity. It could only be accomplished by levees and pumping. In addition to these basin lands there are the islands of the San Joaquin and Sacramento delta, and the lands subject to overflow along the lower San Joaquin and its tributary. The total amount of land within the area considered in this paper, subject to assessment for reclamation purposes, and from which the revenue should come wherewith to pay the cost of reclamation and maintenance thereafter, is estimated as approximately 750,000 acres.

Mr. A. L. Shinn, of Sacramento, after careful examination of the quantity of land that will be benefited by reclamation on the Sacramento and San Joaquin rivers, finds that the area will approximate 1,000,000 acres.

TABLE 1.—*Climatological data for November, 1909. District No. 11, California.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Oregon.																				
Klamath Agency	Klamath		1	30.5	.....	60	19†	2	20†	58	5.74	.....	1.40	.....	12	2	11	17	s.	H. G. Wilson.
Klamath Falls	....do	4,250	18	37.5	− 2.3	63	3	12	15	30	5.30	+ 4.26	0.93	0.0	14	2	8	20	s.	W. H.Heilman.
Lakeview	Lake	4,825	24	35.0	− 3.2	90	3	0	17	67	3.41	+ 1.70	0.57	0.0	13	7	3	20	s.	Walter Dutton.
Long Valley	....do																			Cyrus L. Beeraft.
Merrill	Klamath	4,070	4																	Mrs. E. L. Gifford.
Yonna	....do	4,146	1	38.2	.....	65	3	5	15	35	3.99	.....	0.80	1.3	16	2	24	4	s.	Agent, So. Pac. Co.
California.																				
Alturas	Modoc	4,460	5	40.0	.....	69	3	9	15	43	1.94	.....	0.88	1.5	12	6	13	11	sw.	Prof. C. B. Towle.
Angiola	Tulare	208	9	41.9	.....	68	18	25	17	42	1.12	.....	0.52	0.0	3	24	0	6	nw.	Agent, Santa Fe R. R.
Antioch **	Contra Costa	46	30	61.5	+ 7.7	90	3	32	15†	....	1.20	− 0.28	0.98	0.0	3	22	1	7	nw.	Agent, So. Pac. Co.
Aptos **	Santa Cruz	102	24	52.8	− 0.2	72	2	31	15†	....	1.82	− 1.37	1.04	0.0	7	15	6	9	nw.	Do
Auburn	Placer	1,360	38	57.8	+ 2.8	82	1†	27	16	37	6.54	+ 2.61	2.00	0.0	11	11	1	18	s.	Do
Azusa	Los Angeles	540	7	55.4	.....	96	2	33	15†	46	2.08	.....	0.78	0.0	5	23	3	4	sw.	A. F. Griffith.
Bagdad	San Bernardino	784	6	60.9	.....	86	3†	40	16†	34	0.00	.....	0.00	0.0	0	.....	.....	.....	.....	Agent, Santa Fe R. R.
Bakersfield	Kern	404	20	56.3	+ 0.4	85	1†	36	28	44	2.26	+ 1.88	1.06	0.0	4	15	8	7	.....	Do
Barstow	San Bernardino	2,105	6	50.9	.....	79	4	24	16†	43	0.31	.....	0.26	0.0	2	30	0	0	w.	E. L. White.
Beckwith	Plumas	5,005	1	38.1	.....	69	2	− 6	15	42	3.22	.....	0.58	10.5	13	9	6	15	sw.	F. F. Peck.
Berkeley	Alameda	317	22	52.7	− 1.9	65	1†	38	26†	17	3.43	+ 0.63	1.10	0.0	11	14	3	13	s.	State University.
Biggs **	Butte	98	10	54.2	+ 1.5	78	3	30	26	....	2.23	− 0.37	1.10	0.0	6	15	1	14	s.	Agent, So. Pac. Co.
Bishop	Inyo	4,450	14																	W. A. Chalfont.
Blocksburg	Humboldt	1,700	3	46.9	.....	68	1†	25	14	28	16.80	.....	3.50	0.0	17	7	3	20	se.	Victor Hopa.
Blue Canon	Placer	4,695	10	40.2	− 5.1	68	4	18	15	35	16.15	+ 8.14	5.00	23.0	12	12	2	16	s.	Agent So. Pac. Co.
Blythe	Riverside			56.2	.....	89	3	30	11†	56	0.33	.....	0.33	0.0	1	29	0	1	sw.	H. V. Blenkiron.
Branscomb	Mendocino	2,000	9	46.8	.....	71	3	26	26†	32	25.35	.....	4.95	0.0	14	12	5	13	n.	A. J. Haun.
Brawley	Imperial	−105	....	60.0	.....	93	3	34	29	49	0.21	.....	0.21	0.0	1	20	7	3	w.	U. S. Weather Bureau.
Brush Creek	Butte	2,140	5	45.8	.....	66	2†	26	15†	28	11.03	.....	2.77	0.0	15	15	2	13	s.	Cal. Gas & Electric Co.
Calexico	Imperial	0	4	61.3	.....	88	3†	37	30	39	T.	.....	T.	0.0	0	24	4	2	nw.	J. E. Peck.
Caliente **	Kern	1,290	33	53.8	− 1.4	75	3	35	17	....	2.14	+ 1.36	1.11	0.0	4	21	0	9	nw.	Agent So. Pac. Co.,
Calistoga **	Napa	363	37	49.3	− 4.1	80	3	27	16	....	3.51	− 0.28	1.09	0.0	10	14	0	16	w.	Do
Campbell	Santa Clara	217	12	50.6	− 2.7	76	3	28	16	35	0.95	− 0.63	0.63	0.0	5	14	8	8	nw.	F. M. Righter.
Camptonville (near)	Yuba	3,500	2	48.2	.....	76	2†	28	14†	30	18.84	.....	3.50	5.0	16	16	0	14	.....	S. B. Johnson.
Cedarville	Modoc	4,675	15	39.4	+ 0.5	68	2	5	13	40	3.87	+ 1.79	1.16	5.0	13	8	22	0	sw.	T. H. Johnstone.
Chico	Butte	189	39	53.2	− 0.6	78	2†	27	15	34	2.52	− 0.04	1.25	0.0	12	13	5	12	s.	Agent, Butte R. R. Co.
Chino **	San Bernardino	714	17	58.2	+ 1.4	89	1†	33	15	....	1.78	+ 1.11	0.49	0.0	7	13	0	17	se.	Agent, So. Pac. Co.
Cisco **	Placer	5,939	38	36.3	− 2.4	60	3	15	15	....	15.15	+10.05	5.05	46.0	12	14	2	14	sw.	Do
Claremont	Los Angeles	1,200	17	57.2	− 0.1	96	3	35	16	51	2.17	+ 0.21	0.60	0.0	8	17	7	6	w.	F. P. Brackett.
Cloverdale	Sonoma	340	7	52.4	.....	80	3	31	15	30	4.51	.....	1.55	0.0	11	16	2	12	n.	Lloyd Browne.
Colfax	Placer	2,421	38	45.4	− 6.3	60	2†	28	15†	15	9.28	+ 4.35	2.23	0.5	14	15	2	13	s.	Agent, So. Pac. Co.
Colusa	Colusa	60	6	52.8	.....	76	2	29	16	29	0.84	− 1.00	0.59	0.0	6	.....	.....	.....	.....	W. K. De Jarnatt.
Corning **	Tehama	277	23	52.6	− 2.5	70	1†	32	16	....	2.71	+ 0.49	1.30	0.0	5	10	0	20	s.	Agent, So. Pac. Co.
Cuyamaca (1)	San Diego	4,677	10	47.0	+ 2.3	73	4	27	15	34	6.07	+ 1.66	1.94	0.8	8	8	16	6	e.	L. L. Macquarie.
Daunt	Tulare	4,000	2	49.2	.....	83	3†	18	16	44	6.39	.....	2.50	14.0	9	15	4	11	.....	D. L. Wishon.
Davisville	Yolo	51	37	51.6	− 4.1	78	2†	26	15†	39	0.78	− 0.98	0.59	0.0	5	11	11	8	s.	S. H. Beckett.
Deer Creek	Nevada	3,700	2	43.0	.....	68	2†	19	15	31	16.68	.....	3.03	10.0	16	9	5	16	n.	Cal. Gas & Electric Co.
Delta	Shasta	1,138	24	50.8	− 0.3	81	3	27	16	40	8.37	+ 1.32	1.97	0.0	17	12	0	18	n.	Agent, So. Pac. Co.
Denair	Stanislaus	126	9	52.3	.....	80	4	28	16†	37	0.53	.....	0.17	0.0	8	22	1	7	.....	Agent, Santa Fe R. R.
Dobbins	Yuba	1,650	5	53.6	.....	78	2†	34	15†	28	9.61	.....	2.00	0.0	18	8	8	14	.....	Bishop & Taylorl.
Dudleys	Mariposa	3,000	....	45.7	.....	76	3	22	16	44	6.13	.....	1.84	1.0	11	13	2	15	sw.	W. H. Dudley.
Dunnigan **	Yolo	65	32	57.5	+ 2.5	78	1	37	16†	....	0.32	− 1.75	0.30	0.0	2	14	0	16	s.	Agent, So. Pac. Co.
Dunsmuir **	Siskiyou	2,285	20	43.3	− 1.6	73	3	25	16	....	5.12	− 1.37	1.30	0.5	13	14	0	16	s.	Do.
Durham	Butte	160	14	53.2	+ 2.2	79	3	27	15	37	2.30	− 0.65	1.24	0.0	5	11	5	14	s.	R. W. Durham.
El Cajon	San Diego	482	10	56.2	− 3.9	94	2	32	16	58	2.87	+ 1.48	1.50	0.0	6	23	3	4	sw.	H. H. Kessler.
Electra	Amador	725	5	54.3	.....	77	3	34	14†	32	7.73	.....	1.65	0.0	13	13	10	7	.....	Cal. Gas & Electric Co.
Elsinore	Riverside	1,234	14	53.8	− 4.5	94	3†	28	17	61	1.43	− 0.31	0.55	0.0	4	20	5	5	w.	W. H. Bohannon.
Emigrant Gap	Placer	5,230	35	44.4	+ 1.4	68	3	25	14	37	11.53	+ 7.00	2.20	24.0	13	13	0	17	sw.	Agent, So. Pac. Co.
Escondido	San Diego	657	15	57.8	+ 2.7	100	2	28	3†	69	3.93	+ 2.49	2.00	0.0	4	9	19	2	w.	A. R. Moon.
Eureka	Humboldt	64	23	52.0	+ 1.0	66	17	34	14	23	12.60	+ 7.28	4.02	0.0	21	6	3	21	se.	U. S. Weather Bureau.
Farmington **	San Joaquin	111	30	54.3	− 0.4	77	3†	30	27	....	1.93	+ 0.22	0.70	0.0	8	15	9	6	nw.	Agent, So. Pac. Co.
Folsom	Sacramento	252	37	54.5	− 0.8	80	3	32	15†	33	2.98	+ 0.21	1.00	0.0	11	15	1	14	n.	F. O. Hutton.
Fordyce Dam	Nevada	6,500	14	34.2	.....	50	2	12	15	22	22.15	+14.84	4.70	61.0	17	7	10	13	sw.	E. E. Roening.
Fouts Springs	Colusa	1,650	5	48.7	.....	74	3†	21	15	38	4.52	.....	1.10	0.0	10	.....	.....	.....	.....	H. S. Green.
Fresno	Fresno	293	22	53.8	− 0.8	79	4	34	12	32	2.79	+ 1.62	1.23	0.0	10	12	12	6	nw.	U. S. Weather Bureau.
Fruto **	Glenn	624	20	50.4	− 5.7	75	2	32	15†	....	1.15	− 0.77	0.90	0.0	4	18	0	12	s.	Agent, So. Pac. Co.
Galt **	Sacramento	49	31	54.1	+ 0.1	68	3†	36	15	....	2.19	+ 0.24	1.25	0.0	7	10	1	19	sw.	Do.
Georgetown	El Dorado	2,650	36	47.0	− 8.4	73	2†	27	16	28	13.03	+ 6.72	3.03	1.0	14	9	3	18	se.	C. M. Fitzgerald.
Gilroy **	Santa Clara	193	35	51.7	− 1.1	75	5†	33	16†	....	2.00	− 0.22	0.85	0.0	6	17	0	13	se.	Agent ,So. Pac. Co.
Gold Run	Placer	3,222	10	47.6	− 4.2	72	3†	30	15	28	12.83	+ 6.58	2.06	3.0	14	9	1	20	se.	Do.
Gonzales **	Monterey	127	10	51.8	+ 0.1	85	2	30	27	....	0.86	− 0.76	0.45	0.0	4	17	0	13	n.	Do.
Grass Valley	Nevada	2,690	37	45.2	.....	72	2†	24	15†	32	10.08	+ 4.50	1.96	3.5	14	11	8	11	s.	F. R. Hull.
Greenville	Plumas	3,600	15	43.1	+ 2.5	67	3	14	15	38	6.13	+ 1.49	1.64	9.5	14	8	6	16	sw.	C. H. Higbie.
Groveland	Tuolumne	2,828																		H. S. Richardson.
Guinda **	Yolo	350	11	46.4	− 7.5	73	3	30	27	....	0.85	− 2.08	0.71	0.0	2	14	13	3	.....	Agent, So. Pac. Co.
Hanford	Kings	249	9	53.6	.....	75	1	32	18	30	0.95	.....	0.40	0.0	3	19	3	8	.....	Agent Santa Fe R. R.
Healdsburg	Sonoma	110	16	52.6	− 1.4	78	2†	39	27	30	2.84	− 1.77	1.46	0.0	12	12	1	17	s.	C. A. Menefee.
Heber	Imperial	−20	3	59.2	.....	85	23	33	29†	45	0.05	.....	0.05	0.0	1	29	0	1	w.	E. F. Chumard.
Helen Mine	Lake	2,750	8								9.10	.....	1.72	0.0	10	10	10	10	sw.	A. Rocca.
Hollister	San Benito	284	35	54.2	− 0.3	82	3	30	15†	40	1.11	− 0.37	0.24	0.0	8	15	6	9	w.	J. N. Thompson.
Hornbrook **	Siskiyou	2,154	21	42.9	+ 0.2	69	8	23	1†	....	7.50	+ 4.99	1.75	T.	8	15	4	11	n.	Agent, So. Pac. Co.
Hot Springs	Tulare	3,300	2	46.3	.....	74	8	25	15	36	2.95	.....	1.25	0.0	3	18	0	12	.....	U. S. Forest Service.
Hullville (near)	Lake	2,250	2	47.0	.....	75	2	20	15	36	7.94	.....	1.74	0.0	13	3	13	14	sw.	S. J. Smith.
Idyllwild	Riverside	5,250	8								4.34	.....	1.97	4.8	4	19	3	8	w.	R. D. Fobes.
Independence	Inyo	3,907	13	47.0	− 2.2	71	2	21	16	39	0.19	+ 0.08	0.10	0.0	4	18	8	4	n.	U. S. Weather Bureau.
Indio	Riverside	−20	31	61.8	− 0.8	96	2	32	18	48	0.20	+ 0.01	0.20	0.0	1	20	8	2	nw.	F. N. Johnson.
Inskip	Butte	4,075	2	38.4	.....	62	5	14	15	28	12.74	.....	2.44	26.0	14	7	8	15	.....	Cal. Gas & Electric Co.
Ione **	Amador	287	31	52.1	− 1.3	68	1†	29	16	....	3.72	+ 1.56	1.10	0.0	9	14	0	16	s.	Agent, So. Pac. Co.
Iowa Hill	Placer	2,825	28	49.0	− 2.4	76	3	28	15	30	10.71	+ 5.82	2.08	0.0	15	9	5	16	sw.	C. F. Macy.
Jamestown	Tuolumne	1,471	6	49.6	.....	72	3†	28	15	32	4.46	.....	1.35	0.0	10	15	6	9	.....	Agent, Sierra R. R.
King City	Monterey	333	22	52.1	− 1.7	78	9	22	17†	50	0.72	− 0.74	0.35	0.0	5	26	0	4	.....	Agent, So. Pac. Co.
La Porte	Plumas	5,000	15	42.4	+ 2.8	68	2	21	27	27	22.24	+11.64	4.97	32.2	17	10	7	13	s.	C. W. Hendel.
Le Grand	Merced	255	9	50.7	.....	76	3	31	27	32	2.13	.....	0.81	0.0	6	18	0	12	e.	Agent, Santa Fe R. R.
Lemon Cove	Tulare	600	14	51.8	− 3.8	89	4	20	17	60	2.80	− 1.24	1.14	0.0	6	15	2	13	w.	G. W. Sandidge.
Lick Observatory	Santa Clara	4,209	20	44.4	− 5.0	65	3	25	26	20	2.59	− 0.36	1.20	0.0	8	11	6	13	nw.	The Director.
Livermore	Alameda	485	38	54.4	− 0.5	81	3	29	16	36	1.68	− 0.08	1.01	0.0	9	12	6	12	w.	E. G. Still.
Lodi	San Joaquin	45	27	51.8	− 1.8	74	3	30	16†	32	2.03	− 0.46	1.20	0.0	8	15	4	11	w.	Ezra Fiske.
Lone Pine	Inyo	2,728	4	46.3	.....	72	21	17	16	44	T.	.....	T.	0.0	0	26	2	2	s.	G. F. Marsh.
Long Valley	Lassen																			A. G. Evans.
Los Angeles	Los Angeles	293	32	60.6	+ 1.6	93	2	42	15	33	1.51	+ 0.13	0.85	0.0	7	16	11	3	sw.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for November, 1909. District No. 11*—Continued

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
California—Cont'd.																			
Los Banos **	Merced	121	22	56.9	+ 2.5	80	1	38	17	....	0.70	− 0.39	0.35	0.0	3	11	0	19	s.	Agent, So. Pac. Co.
Los Gatos	Santa Clara	600	22	53.8	− 0.5	77	3	35	16†	27	1.71	− 2.15	1.30	0.0	7	16	1	13	n.	F. H. McCullagh.
Macdoel	Siskiyou	4,258	2	38.4	.....	68	2	5	15	44	11.50	.....	3.03	0.1	10	2	8	20	sw.	Robert Miller.
Madeline	Lassen	5,270	....	36.8	.....	74	4	0	16	52	2.62	.....	1.50	8.0	9	3	12	15	sw.	J. H. Williams.
Magalia	Butte	2,321	5	44.8	.....	72	2	26	16	34	14.24	.....	3.51	0.0	15	12	6	12	s.	Agent, Butte Co. R. R.
Mammoth Tank	Imperial	257	31	61.6	− 2.2	95	3	38	19†	39	0.40	+ 0.26	0.40	0.0	1	27	2	1	w.	Agent, So. Pac. Co.
Marysville	Yuba	67	38	56.8	+ 0.4	88	5	32	16†	33	3.21	+ 1.17	1.43	0.0	7	9	0	21	s.	Do.
Mecca	Riverside	−185	3	59.3	.....	91	3	31	17	47	0.34	.....	0.34	0.0	1	24	5	1	se.	A. Lunsted.
Menlo Park **	San Mateo	64	31	54.8	+ 1.6	72	2†	34	15†	....	1.36	− 0.44	0.70	0.0	6	12	0	18	s.	Agent, So. Pac. Co.
Merced	Merced	173	35	51.2	− 4.2	78	2	32	12†	36	0.60	− 0.65	0.50	0.0	2	20	0	10	nw.	Agent, Santa Fe R. R.
Mill Creek (1)	Amador	.....	2	46.2	.....	72	2	26	16	30	10.29	.....	2.10	4.2	14	9	7	14	s.	Cal. Gas & Electric Co.
Milton (near)	Calaveras	660	19	54.4	− 1.9	75	3	34	27	22	3.48	+ 1.18	1.04	0.0	9	7	12	11	se.	J. H. Southwick.
Modesto **	Stanislaus	90	37	54.3	− 1.5	74	21	35	27	....	1.58	+ 0.15	0.90	0.0	7	22	0	8	.....	Agent, So. Pac. Co.
Mojave	Kern	2,751	32	50.6	− 4.2	76	3	26	29	44	0.75	+ 0.35	0.50	0.0	2	26	0	4	nw.	Do.
Mokelumne Hill	Calaveras	1,550	16	51.9	+ 1.7	75	3	33	15	25	7.04	+ 3.22	1.73	0.0	13	8	4	18	.....	C. E. Prindle.
Mono Ranch	Ventura	3,210	5	47.0	.....	78	2	22	15	45	1.63	.....	0.86	0.0	3	23	4	3	w.	H. Lathrop.
Montague	Siskiyou	2,450	21	42.2	− 3.5	69	1	17	15†	39	3.11	+ 1.83	0.58	T.	9	9	0	21	s.	G. H. Chambers.
Monterey **	Monterey	15	44	54.5	+ 0.2	72	21†	38	15†	....	1.61	+ 0.07	0.36	0.0	6	19	7	4	se.	Agent, So. Pac. Co.
Monterio	Kern	4,560	10	50.0	− 6.5	72	2†	26	15	32	2.77	+ 0.92	1.06	1.0	5	15	9	6	nw.	John C. Knecht.
Monumental	Del Norte	.....	4	42.3	.....	66	3	25	14	26	39.73	.....	9.60	4.0	24	5	2	23	.....	G. F. Morgan.
Mount Tamalpais	Marin	2,375	10	48.4	− 2.2	69	3	33	14	15	3.93	− 1.49	1.11	0.0	13	12	4	14	nw.	U. S. Weather Bureau.
Napa (1) §	Napa	20	32	56.8	− 1.0	79	2	28	14†	35	2.90	+ 0.02	1.08	0.0	12	13	4	13	s.	Thomas Hull.
Napa (2)	do.	60	31	52.9	+ 1.1	79	3	33	16†	36	2.45	− 0.27	1.13	0.0	11	13	4	13	s.	W. H. Martin. (S. H.)
Needles	San Bernardino	477	17	57.2	− 2.9	85	3	37	19†	42	T.	− 0.24	T.	0.0	0	23	2	5	w.	Agent, Santa Fe R. R.
Nevada City	Nevada	2,580	17	46.8	− 0.2	79	2	23	15	42	8.94	+ 2.07	2.90	3.5	15	13	0	17	sw.	S. W. Marsh.
Newcastle	Placer	970	16	56.3	+ 1.4	80	21	33	15†	41	5.17	+ 0.33	2.05	0.0	13	16	2	12	sw.	George D. Kellogg.
Newhall **	Los Angeles	1,200	32	54.6	− 0.2	88	2	30	27	....	2.18	+ 0.62	1.10	0.0	4	19	0	11	ne.	Agent, So. Pac. Co.
Newman	Stanislaus	91	20	54.3	− 2.8	76	3†	30	16	31	0.69	− 0.62	0.36	0.0	3	17	0	13	n.	E. S. Wangenheim.
Nimshew	Butte	2,500	5	46.0	.....	72	2	26	15	30	10.19	.....	2.50	0.8	17	11	6	13	.....	Cal. Gas & Electric Co
North Bloomfield	Nevada	3,200	12	50.8	+1.08	74	1†	28	30	44	8.45	+ 1.90	1.16	16.0	13	15	3	12	.....	W. G. Shand.
North Fork	Madera	3,000	5	47.4	.....	77	3	22	15	39	7.29	.....	1.88	9.0	9	10	11	9	sw.	C. H. Shinn.
Oakdale **	Stanislaus	156	15	52.4	− 0.5	75	2†	32	16†	....	1.83	− 0.17	0.63	0.0	8	13	7	10	nw.	Agent, So. Pac. Co.
Oakland	Alameda	36	33	53.3	− 0.5	69	2†	37	28	20	2.66	− 0.37	1.03	0.0	11	12	6	12	w.	Chabot Observatory.
Ojai Valley	Ventura	900	3	56.3	.....	98	2	28	15†	58	1.10	.....	0.55	0.0	4	23	6	1	w.	W. H. Duncan.
Orland	Glenn	254	27	52.4	− 4.0	80	3	32	15	32	1.74	− 0.34	1.07	0.0	6	17	4	9	se.	W. W. Patch.
Orleans	Humboldt	520	6	52.7	.....	82	2	32	14†	30	20.14	.....	3.95	0.0	19	5	0	25	.....	Fred T. Hale.
Oroville (near)	Butte	250	25	53.1	− 4.0	76	2	32	15	26	3.58	− 0.16	1.25	0.0	7	10	5	15	s.	E. D. Fairchild.
Palermo	do	213	18	53.2	+ 0.8	80	2	28	15	36	2.74	− 0.64	1.18	0.0	7	5	11	14	s.	Miss Hettie Boalt.
Palm Springs **	Riverside	584	20	60.9	− 4.2	92	2	39	16	....	0.07	− 0.22	0.07	0.0	1	19	2	9	w.	Agent, So. Pac. Co.
Pasadena	Los Angeles	827	19	57.0	− 2.1	93	2†	33	15	49	2.25	+ 1.85	0.90	0.0	6	21	3	6	sw.	E. R. Sorver.
Paso Robles **	San Luis Obispo	800	22	51.9	+ 0.3	88	4	24	15†	59	1.94	+ 0.51	0.90	0.0	4	20	7	3	nw.	Dr. F. W. Sawyer.
Peachland	Sonoma	190	13	51.6	− 0.8	81	2	27	16†	37	3.84	− 0.85	1.13	0.0	13	14	8	8	s.	E. H. Parnell.
Penstock Camp	Tuolumne	3,750	2	47.8	.....	72	2†	28	14†	26	8.50	.....	2.00	9.0	13	5	17	9	se.	Tuolumne W. P. Co.
Pine Crest	Santa Barbara	1,000	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. C. M. Richter.
Placerville	El Dorado	1,875	20	47.2	− 0.9	68	2†	28	15†	28	8.64	+ 3.43	1.87	0.0	14	13	0	17	s.	A. Baring-Gould.
Point Lobos	San Francisco	250	16	54.4	+ 0.6	71	2†	44	27	17	2.43	− 0.13	0.86	0.0	13	14	0	16	nw.	John Hyslop.
Point Reyes	Marin	490	17	52.4	− 0.6	67	2	44	18	14	2.73	− 0.67	0.69	0.0	13	11	5	14	nw.	U. S. Weather Bureau.
Porterville	Tulare	464	20	53.2	− 1.7	80	4	31	16	39	1.79	+ 0.99	0.73	0.0	5	12	10	8	.....	Harry E. Cowie.
Poway	San Diego	460	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Adams Chapin.
Quincy	Plumas	3,400	14	41.4	+ 0.3	64	1	16	28	32	5.43	− 0.31	1.25	7.0	13	13	5	12	sw.	L. A. Barrett.
Red Bluff	Tehama	307	32	52.4	− 1.0	76	2	32	16	26	2.70	− 0.40	0.85	0.0	8	10	7	13	nw.	U. S. Weather Bureau.
Redding	Shasta	552	34	51.6	− 2.5	74	2	33	16	25	7.30	+ 3.51	1.95	0.0	12	14	6	10	n.	L. F. Bassett.
Redlands	San Bernardino	1,352	16	56.2	− 2.7	92	3	34	15†	45	1.67	+ 0.73	0.52	0.0	7	20	7	3	w.	Paul W. Moore.
Reedley	Fresno	347	9	52.4	.....	79	3	32	15†	38	2.65	.....	1.30	0.0	4	25	1	4	n.	Agent, Santa Fe R. R.
Rialto (near)	San Bernardino	2,250	3	58.0	.....	83	2†	36	13	25	6.72	.....	2.66	0.0	8	19	4	7	sw.	Edison Electric Co.
Riverside	Riverside	851	27	56.2	− 2.0	94	3	34	15	49	1.96	+ 1.20	0.73	0.0	7	18	7	5	w.	C. W. Barton.
Rocklin	Placer	249	38	51.8	− 2.1	77	3	29	15†	32	3.11	− 0.82	1.17	0.0	10	17	2	11	s.	Agent, So. Pac. Co.
Rohnerville	Humboldt	75	6	52.4	.....	69	2	32	12†	32	10.02	.....	3.18	0.0	16	8	6	16	se.	Dr. R. Calliham.
Sacramento (1)	Sacramento	71	32	53.4	0.0	76	2	34	27	26	1.32	− 0.83	0.77	0.0	14	12	4	14	se.	U. S. Weather Bureau.
Sacramento (2)	do	35	56	52.4	− 1.1	75	3	32	27	29	1.54	− 0.61	0.61	0.0	14	12	3	15	n.	S. H. Gerrish.
St. Helena	Napa	255	1	51.8	.....	81	2†	27	16	37	4.82	.....	1.87	0.0	10	15	3	12	n.	B. F. Kettlewell.
Salinas	Monterey	40	35	53.7	+ 0.6	82	2	33	27	39	0.65	− 1.81	0.18	0.0	5	23	7	0	w.	Miss E. Ruth Abbott.
San Bernardino	San Bernardino	1,054	17	56.0	− 1.4	97	3	30	16	61	2.28	+ 0.83	0.78	0.0	7	18	7	5	sw.	Dr. A. K. Johnson.
San Diego	San Diego	93	38	57.2	− 1.8	85	2	42	28	29	2.39	+ 1.61	0.95	0.0	5	21	4	5	nw.	U. S. Weather Bureau.
San Francisco	San Francisco	207	38	54.8	− 0.7	74	3	43	27	24	2.43	− 0.25	0.97	0.0	12	11	6	13	nw.	Do.
San Jacinto	Riverside	1,550	16	58.4	+ 2.3	98	1†	31	16†	64	1.70	+ 0.32	0.85	0.0	5	20	3	7	w.	E. T. Tanner.
San Jose	Santa Clara	95	34	53.4	− 1.0	77	3	30	16	34	1.27	− 0.23	0.66	0.0	11	14	9	7	nw.	U. S. Weather Bureau.
San Leandro	Alameda	48	14	52.0	− 4.8	79	2	28	15	37	2.65	− 0.35	1.27	0.0	12	14	5	14	w.	Dr J. E. Childs.
San Luis Obispo	San Luis Obispo	201	14	56.2	− 0.1	89	3	35	16	45	2.24	+ 0.23	1.47	0.0	8	14	9	7	nw.	U. S. Weather Bureau.
San Mateo **	San Mateo	22	35	56.8	+ 3.0	74	3†	38	15†	....	1.63	− 0.86	1.09	0.0	10	11	8	11	nw.	Agent, So. Pac. Co.
San Miguel **	San Luis Obispo	616	22	54.7	+ 1.0	78	2†	30	13†	....	2.23	+ 1.12	0.92	0.0	7	15	9	6	.....	Do.
Sanger **	Fresno	371	20	59.1	+ 2.3	71	3†	48	7	....	3.11	+ 1.97	1.40	0.0	8	9	0	21	.....	Do.
Santa Barbara	Santa Barbara	130	25	55.8	− 3.3	90	4	37	27	41	2.34	+ 0.73	1.00	0.0	4	21	7	2	w.	George W. Russell.
Santa Clara	Santa Clara	90	20	53.7	− 0.2	79	2†	28	16	37	1.38	− 0.49	0.76	0.0	9	14	5	11	nw.	Santa Clara College.
Santa Cruz	Santa Cruz	20	36	53.4	− 2.1	82	2	30	26	36	1.77	− 0.94	1.00	0.0	6	21	4	5	n.	W. R. Springer.
Santa Margarita **	San Louis Obispo	996	20	54.8	+ 4.0	73	1†	38	14	....	2.30	− 0.37	1.45	0.0	5	22	0	8	sw.	Agent, So. Pac. Co.
Santa Maria	Santa Barbara	220	21	53.5	− 4.3	74	2	35	15	28	2.14	+ 0.87	1.00	0.0	5	.....	.....	.....	.....	L. E. Blochman.
Santa Monica	Los Angeles	110	24	54.8	− 5.4	84	3	39	14†	29	1.88	− 0.12	0.78	0.0	4	18	4	8	w.	N. D. Ingham.
Santa Rosa	Sonoma	181	20	51.2	− 2.7	80	2	26	15†	37	4.53	+ 1.51	1.03	0.0	12	15	2	13	sw.	M. L. McDonald, jr.
Selma **	Fresno	311	23	49.1	− 5.5	71	4	34	15	....	3.12	+ 2.24	1.51	0.0	8	11	12	7	nw.	Agent, So. Pac. Co.
Shasta	Shasta	1,049	13	48.5	− 5.5	85	3	23	16	41	7.40	+ 1.16	1.61	0.0	12	13	8	9	s.	Dr. T. J. Edgecomb.
Sierra Madre	Los Angeles	1,400	12	57.2	− 4.0	88	2†	39	15	33	2.91	+ 1.00	1.12	0.0	6	19	1	10	s.	Miss A. E. Carter.
Sisson	Siskiyou	3,555	20	38.4	− 2.7	73	2	15	14	45	4.27	+ 0.28	0.98	4.8	13	10	1	19	n.	Agent, So. Pac. Co.
Soledad **	Monterey	188	35	57.2	+ 4.0	75	17	45	4	....	0.83	− 0.26	0.30	0.0	6	16	5	9	s.	Do.
Sonora	Tuolumne	1,825	21	50.3	.....	72	3	29	15	27	4.75	+ 0.84	1.44	0.0	11	16	2	12	sw.	Charles P. Jones.
Southeast Farallon	San Francisco	30	6	53.2	.....	60	9	47	18	9	2.13	.....	1.10	0.0	12	10	5	15	n.	U. S. Weather Bureau.
Stirling City	Butte	3,525	5	39.2	.....	60	8	21	15	28	9.55	.....	2.60	4.0	9	12	0	18	n.	Agent, Butte Co. R. R.
Stockton (1)	San Joaquin	23	38	52.0	− 1.2	74	2†	28	16	28	1.56	− 0.20	0.92	0.0	7	17	3	10	nw.	State Hospital.
Storey	Madera	296	9	50.0	.....	77	3†	25	12	36	0.93	.....	0.44	0.0	3	22	0	8	nw.	Agent, Santa Fe R. R.
Suisun **	Solana	20	29	54.0	− 0.8	80	2	30	16	....	1.35	− 0.96	0.65	0.0	6	14	3	13	sw.	Agent, So. Pac. Co.
Summerdale	Mariposa	5,270	13	45.6	− 2.3	76	3	17	15	34	8.70	+ 3.62	2.14	29.0	11	13	8	9	s.	J. H. Lowry.
Summit	Placer	7,017	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, So. Pac. Co.
Susanville	Lassen	4,175	20	39.7	− 2.1	64	4	13	15†	32	3.28	+ 0.47	1.06	0.0	15	12	13	5	sw.	J. Branham.
Tamarack	Alpine	8,000	3	29.2	.....	54	2	− 8	15	44	14.36	.....	2.30	116.6	16	10	1	19	sw.	William Bennett.
Tehachapi **	Kern	3,964	32	44.1	− 2.4	71	3	30	28	....	1.74	+ 1.18	0.60	0.0	4	.....	.....	.....	.....	Agent, So. Pac. Co.
Tehama **	Tehama	220	38	53.7	− 1.4	77	1	31	16	....	2.33	0.00	1.04	0.0	3	18	0	12	s.	Do.
Towle	Placer	3,704	23	45.6	− 3.4	78	2	22	15	50	11.88	+ 5.42	2.00	T.	11	14	0	16	s.	Do.

TABLE 1.—*Climatological data for November, 1909. District No. 11*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
California—Cont'd.																				
Tracy**	San Joaquin	64	29	.....	.....	.....	.....	.....	.....	.....	1.51	− 0.36	0.92	0.0	4	15	7	8	nw.	Agent, So. Pac. Co.
Tulare (near)	Tulare	274	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. T. Bearss.
Ukiah	Mendocino	620	16	49.8	− 1.4	74	3	26	15†	34	5.14	+ 1.24	1.10	0.0	12	16	3	11	nw.	Dr. George McCowen.
Upland	San Bernardino	1,750	12	54.2	− 4.7	89	3	33	15†	42	2.33	+ 0.87	0.94	0.0	4	20	6	4	w.	A. P. Harwood.
Upper Lake	Lake	1,350	24	48.6	− 2.8	76	3	28	15†	33	4.18	+ 1.40	0.82	0.0	11	15	2	13	nw.	C. M. Hammond.
Vacaville	Solano	175	21	53.2	− 2.5	83	2	28	15†	42	1.48	− 1.60	0.70	0.0	9	11	13	6	sw.	G. O. Coburn.
Valley Springs**	Calaveras	673	20	55.9	− 0.3	72	1†	38	27	....	4.28	+ 1.66	1.23	0.0	11	10	6	14	w.	Agent, So. Pac. Co.
Visalia	Tulare	334	21	59.6	+ 7.6	72	5	42	16	21	2.24	+ 1.37	0.87	0.0	9	14	1	15	.....	Agent, Santa Fe R. R.
Warner Springs	San Diego	3,165	1	54.4	.....	90	8	30	10†	50	2.66	.....	0.96	0.0	4	.....	.....	.....	.....	Mrs. F. S. Sanford.
Wasco	Kern	336	9	52.5	.....	74	20	34	2	36	0.55	.....	0.34	0.0	2	23	0	7	.....	Agent, Santa Fe R. R.
Watsonville	Santa Cruz	23	13	54.0	− 2.1	77	3†	29	16†	36	1.80	− 2.02	0.93	0.0	10	7	20	3	sw.	Spreckels Sugar Co.
Westley**	Stanislaus	90	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, So. Pac. Co.
Wheatland	Yuba	84	22	52.5	− 0.5	75	2	31	15	28	2.61	+ 0.02	1.34	0.0	11	10	8	12	s.	Wm. Lumbard.
Willows	Glenn	136	30	51.9	− 2.9	77	2	30	16	28	1.11	− 0.75	0.52	0.0	9	13	3	14	s.	M. T. Harrington, jr.
Yosemite	Mariposa	3,945	5	37.0	.....	56	22	12	16	32	10.15	.....	1.98	26.0	12	13	6	11	s.	C. W. Tucker.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 11, California.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon.																															
Klamath Agency	Klamath			.20							.10	.09						.50	.50	.50	.50	.60	1.40	.95	.10			.30				5.74
Klamath Falls	do	.23				.35				.14		.07		.06						.90	.93	.82	.90	.54	.08	.01			.08		.19		5.30
Lakeview	Pitt					.22	.03			.41	.10	.02								.36	.45	.57	.33	.45	.22	.20					.05		3.41
Long Valley	Pitt																														
Merrill	Interior																														
Yonna	Interior	.19				.15	.01			.22	.05	.10		.01					.04	.65	.69	.80	.38	.45	.04	T.	T.	T.	.02		.19		3.99
California.																															
Aguanga	Coast									.38		.12		.05	.52												.83					1.90
Alturas	Sacramento					.11			.01	.29	.02	.09		.05				.01			.12	.88	.13		.01	.22	T.					1.94
Anderson	do					.13			.75	.05	.03	.01		.17	.05				.01	.56	2.44	.64	.54	.46	.81	.07				.23		6.95
Angels Camp	San Joaquin																														
Angiola	do						T.			.50		T.		.10	T.											.52						1.12
Antioch	do								T.	.98	T.	.20								.02												1.20
Aptos	Coast									1.04	.08	.12			.15						.07	.22				.14						1.82
Arrowhead Springs	do																														
Auburn	Sacramento						.40			2.00	.20	.18			.22					.20	.72		1.50		.30	.70	.12					6.54
Azusa	Coast									.78		.11		.42							.04						.73					2.08
Bagdad	Desert																															0.00
Bakersfield	San Joaquin																															‡2.26
Barstow	Desert									.26					.05												T.					0.31
Bear River	San Joaquin																															
Bear Valley (1)	Sacramento					.94			2.00	1.10	.50			1.10					.94	2.68	3.00	.64	.44	.94	1.60					2.10		17.98
Bear Valley (2)	San Joaquin										1.50		.68		.90							.02					1.03	.23				4.36
Beckwith	Sacramento					.17	.12		T.	.32	.45	.03		.02	.46					.15	.48	.58	.02	T.	.13	.29					T.		3.22
Ben Lomond	Coast					T.			2.25	.15				.22						.05	.30											2.97
Berkeley	do					.09				1.10	.20	.25		.01						.57		.42	.11		.68					T.		3.43
Big Bar	Sacramento																															
Biggs	do									1.10		.20			.30					.25	.20	.18										2.23
Bishop	Owens																															
Blocksburg	Coast	.47				.57		.05	1.05	1.47	.43	.10		.47					.84	1.00	3.50	1.30	1.55	1.94	.76	T.	.10			1.20		16.80
Blue Canon	Sacramento						.50			.60	.40	.50			.10					.80	3.50	5.00	2.00	.50	1.00	1.25	T.					16.15
Blythe	Colorado																										.33					0.33
Boulder Creek	Coast					T.				2.34	.27	.08			.20					.26		.20			.06	.09						3.50
Bowmans Dam	Sacramento																															
Branscomb	Coast	.40				.42			1.34	1.29	.75			.37					.26	4.94	4.55	1.93	2.28	4.55	.92		T.			1.34		25.35
Brawley	Desert											T.	T.		T.												.21					0.21
Brush Creek	Sacramento					.04	T.		.22	2.77	.29	.37		.10	.19					1.43	2.20	.96	.55	.54	.95	.09				.33		11.03
Butte Valley	do					.23	.20		.30	1.10	.60			.25	.09					.43	1.18	.57	.30	.38	.30	.12				.13		6.18
Calexico	Desert																										T.					T.
Caliente	San Joaquin									.48			.11			.44											1.11					2.14
Calistoga	Coast	.01							T.	1.09	.19									.26	.52		.75	.10	.47	.02						3.51
Campbell	do								.63	.15	.03	T.								T.	.05					.06						0.95
Campo	do									.28		.22	.32		.38	.35											1.44	.45				3.44
Camptonville (near)	Sacramento					.20	.10		.03	2.20	.56	.33		.05	2.02					2.03	3.50	2.32	1.57	.56	2.56	.44				.37		18.84
Cedarville	Mountain Lakes	.05			.38			.25	.36	T.	T.	.30								.11	1.16	.68	.20	.10	.06	.16				.06		3.87
Chico	Sacramento								.18	1.25	.02			.08	.17					.28	.30	.09		.02	.01	.02				.10		2.52
Chico (near)	do									1.48				.28						.33	.36			T.	.07					.50		3.02
China Flat	Coast	.44				.30		.01	1.05	1.18	.52	.05		.13					.34	1.17	3.72	.70	1.40	1.12	.18		T.			.93		13.24
Chino	do									.49	.48	.11			.09	.08												.24	.29			1.78
Cisco	Sacramento						.60			1.60	.70	.50			1.00					.75	2.05	5.05	.45		1.30	1.05	.10					15.15
Claremont	Coast									.60	.07	.13			.44	.32										.01	.55	.05				2.17
Clear Lake	Klamath																															
Cloverdale	Coast	.02				T.				1.55	.32			.08					T.	.59	.40	.48	.38	.38	.11					.20		4.51
Colfax	Sacramento						.32			1.80	.50	.53	.10		.57	.05				.45	1.00	2.23	.60	.03	.40	.70							9.28
Colgate	do						.07			1.71	.23	.07			.66					.28	1.52	2.14	.34		1.00	1.04	.05				.01		9.12
Colusa	do								.12	.59	.01			.03						.08		.01										0.84
Corning	do								1.30	.10										.70		.31								.30		2.71
Corona	Coast									.43		.29			.53											.23						1.48
Crescent City	do																															
Crockers	San Joaquin					1.15						3.33			.78					1.37						1.07						7.70
Cuyamaca (1)	Coast										.58	.03	.53	.36	.35	1.86											.42	1.94				6.07
Cuyamaca (2)	do																															
Daunt	San Joaquin									2.50	.14	.48	T.		.38	.25						.37				.64	1.31	.32				6.39
Davisville	Sacramento									.59	.01	.11										.06			.01							0.78
Deer Creek	do					.41	.01		.01	2.45	1.57	.09		T.	1.90				1.83	3.03	2.08	.71	.21	1.40	.57	.05			.36		16.68
Delta	do	1.45	.01			.18			.31	.58	.05	.02		.11		.04			.04	1.10	1.97	.30	.51	1.17	.27				.26		8.37
Denair	San Joaquin								.04		.09	.11		.09								.17	.01	.01	.01							0.53
Descanso	Coast									.53		.72			1.80											.50		1.57				5.12
Dinuba	San Joaquin								.90	.36				.38								.08				.12	1.05					2.89
Dobbins	Sacramento					.05	.03	.01	.01	2.00	.16	.05		.06	.72					1.22	1.77	1.03	.37	.17	1.33	.39	.02			.22		9.61
Downieville	do					.40	.17			2.45	1.27	.45	.17	.10	.85					1.65	2.20	1.61	.80	.39	.51	.82				.28		14.12
Dudleys	San Joaquin						.32			1.84	.62	.19			.70					.20	.11	1.10		T.	.10	.92	.03			T.		6.13
Dunnigan	Sacramento									.30										T.	T.				.02							0.32
Dunsmuir	do	T.		.20		.10			T.	.35				.05					T.	1.10	1.30	.50	.60	.30	.05				.15	.10		5.12
Durham	do					T.				1.24				.24						.35	.23				T.					.24		2.30
Dyerville	Coast					.31		.52	1.30	.62	.33	.38							.72	.28	2.15	.37	.46	.69	.45	.01	.02				.50		9.11
Edgewood	Klamath									.20				.15						.65	.63		.09	.08	.02					.09		1.91
Edison	San Joaquin																															
El Cajon	Coast									.36		.33	.13		.26	.29										1.50						2.87
Electra	San Joaquin					.05			1.39	.74	.41	.05		1.65	T.					.55	1.59	.01	T.	.12	.28	.05				.84		7.73
Elsinore	Coast									.55		.16			.51												.21					1.43
Emigrant Gap	Sacramento						.66			.80	.40			1.20					.75	2.20	2.00	.07	.30	.70	1.05	.50				.90		11.53
Escondido	Coast											2.00			.37												1.54	.02				3.93
Eureka	do	.32			.74	.21		.04	1.24	.55	.22	.04		.27		T.			.15	2.60	2.20	.85	.75	1.15	.59	.05	.07	.05		.25	.26	12.60
Fairmont	do									.60		.07			.10						T.					.60						1.37
Farmington	San Joaquin									.70	.12	.40			.12							.32			.08	.08	.11					1.93
Felton	Coast									1.72	.27	.03			.18						.15					.14						2.49
Firebaugh	San Joaquin						.13			.48	.03				.31											.08	.12					1.15
Folsom	Sacramento						.06			1.00	.04	.26	.06		.06					.04	.14	.70			.18	.44						2.98
Fordyce Dam	do					.52	.70		.10	1.85	1.26	.34	T.	.40	.92					2.10	4.70	2.06	1.92	.82	.90	1.55	.31			1.70		22.15
Fort Bragg	Coast								2.40	.65										.42	.60	.30	2.10	1.43	.90	.20				.22	1.08	10.30
Fort Ross	do																															
Fouts Springs	Sacramento							.51	.61	.38				.18					1.10		.84		.48	.31	.03					.08		4.52
Fresno	San Joaquin						.09		.23	.72	.01	.08		.17	.22							.04			.03	1.20							2.79
Fruto	Sacramento									.90	T.				.05					.05	T.	.15											1.15
Galt	San Joaquin						.13			1.25	T.	.18			.10							T.	.35		.05	.13							2.19
Georgetown	do						.24			1.87	.76	.88	.12		.90					.40	1.87	3.13	.53	.10	.55	1.64	.04						13.03
Gilroy	Coast									.60	.85	.26		.17	T.						.05	T.	T.		.07								2.00
Glendora	do																															
Glen Ranch	do									1.34	.40		.60	.03	.41	.39											.78	.12				4.07
Glenwood	do								1.60	.11				.22						.10					.22							2.25
Gold Run	Sacramento						.40			1.70	1.00	.60			.30					.60	1.97	2.06	.90	.10	.60	1.00				1.60		12.83
Gonzales	Coast									.45	.05	.20			.16																	0.86
Grass Valley	Sacramento					.10			1.90	.38		.10			.63					.95	1.64	1.96	.41	.07	1.15	.60	.04			.15		10.68

TABLE 2.—*Daily precipitation for November, 1909. District No. 11*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
California—Cont'd.																																	
Greenville	Sacramento					.22	.16	T.	T.	1.53	.34	.04	T.	T.	.48				T.	.32	1.64	.69	.08	.19	.27	.11					.06		6.13
Gridley	do						.02			1.05		.15			.32					.41	.01	.20		.05	.12						.04		2.37
Groveland	San Joaquin																																
Guinda	Sacramento									.71												14	T.										0.85
Hanford	San Joaquin																																‡0.95
Head Dam	Sacramento					.10	.05			2.15	.70	.25			1.28					1.95	2.80	1.90	.92	.94	1.27	.55	.12				.42		15.40
Healdsburg	Coast					.05				1.46	.09	.10								.22	.20	.41	.09	.05	.10	.02					.05		2.84
Heber	Desert																										.05						0.05
Helen Mine	Coast								.44	.60			.47							1.30	.98	.88	1.33	1.72	.64					.74		9.10
Hollister	do						.01			.22	.11	.24			.16						.03	.14					.20						1.11
Hornbrook	Klamath				T.											T.		.25	.75	.50	1.50	1.25	1.25	.25				T.		1.75		7.50
Hot Springs	San Joaquin														T.												2.65	.30					2.95
Hullville (near)	Coast	.01				.10			.57	.65	.36		.12							1.74	1.27	1.05	.63	.92	.18					.34		7.94
Idyllwild	do									.62					1.97	.30											1.45						4.34
Independence	Owens								T.	.03			.10		.03											T.	.03						0.19
Indio	Desert																										.20						0.20
Inskip	Sacramento					.29			.52	1.72	.67	.34		.45						.81	2.44	1.31	.98	.89	1.07	.24	T.				.51		12.74
Ione	San Joaquin								1.10	.38	.35				.50						.20	.80			.20	.14	.05						3.72
Iowa Hill	Sasramento					.27	.07			1.68	.40	.08			.75					1.12	2.08	1.68	.70	.06	.81	.71	.02				.28		10.71
Isabella	San Joaquin								.84			.04			.67					.02						.23							1.80
Jacksonville	do						.20			.90	.48	.12	.13		.32						.05	.85			.14	.61	.18						3.98
Jamestown	do						.13			.95	.25	.40			.43					.25	.05	1.35			.20	.45							4.46
Jenny Lind	do										1.06	.12	.26			.36						.55				.07	.36					2.78
Jolon	Coast						.05			.62		.16													T.	.28							1.11
Julian	do										.65		.50		1.60												1.55						4.30
Kennedy's Mine	San Joaquin																																‡7.01
Kennett	Sacramento	.30	.20							.50					.56					.54	2.44	2.00	1.56	.82	.82	.08					.38		10.20
Kentfield	Coast								.11	1.47		.90			.07							.24		.07	.12	.05						3.03
Kernville	San Joaquin									.65				.45												.19							1.29
King City	Coast						.05			.35		.03									.10						.19						0.72
Knights Landing	Sacramento						T.			1.20					.06							.40			.04	T.							1.70
Knob	do		.04	.10	.35		.16		.14	.56				.03	.56	.16	.39		.12		.12				.56	.78	1.04	.16	1.29	3.06	.97		10.54
La Grange	San Joaquin							.20		.74	.32				.12							.48			.03	.15							2.04
Lakeside	Coast														1.65										1.53								3.18
La Porte	Sacramento	.08				.52	.24		.30	1.99	1.28	.28		.24	.80					2.30	4.97	2.62	1.86	1.10	2.15	1.08					.43		22.24
Lathrop	San Joaquin						.03			.84	.06	.18													.09								1.20
Laurel	Coast								1.75	.15																.10							2.00
Laytonville	do	.02			.25		1.55	1.02						.20						2.42	1.55	2.64	.74	.91	1.15	.18				.66	.59		13.88
Le Grand	San Joaquin									.81	.25	.26			.31						.10					.40							2.13
Lemon Cove	do									1.14	.03	.03		.40							.14						1.06						2.80
Lick Observatory	Coast									1.20	.26	.09			.36					.05	.35				.09	.19							2.59
Livermore	do																																
Lodi	San Joaquin					.05				1.21		.26								.05	.12	.21		.03	.10								2.03
Lone Pine	Owens												T.														T.						T.
Long Camp	San Joaquin					.48				1.79	.85				1.67						.08	2.00			.80	1.38					.13		9.18
Long Valley	Mountain Lakes					T.	.09			.03	.17	.05	T.	.07	.48					.11	.44	.53		T.	T.	.11					T.		2.08
Lordsburg	Coast										.75		.13			.65											.47	.14					2.14
Los Alamos	do									.96		.13															.17	.43					1.69
Los Angeles	do									.30		.19	.01	.01	.15										T.	.21	.64						1.51
Los Banos	San Joaquin									.35	.05	.30																					0.70
Los Gatos	Coast					T.				1.30	.05	.04		.08						T.	T.	.07			.02	.15							1.71
Los Vaqueros	do																																
Lowe Observatory	do														1.00												2.10						3.10
Lyonsville	Sacramento																																
Lytle Creek	Coast									1.45	.03	08	.38		1.90	.05											1.36						5.25
Macdoel	Klamath																																
Madeline	Mountain Lakes	T.	T.	T.						.10	.30	T.			.20							1.50		.11	.12		.01	.20		.08		2.62
Magalia	Sacramento					.08			3.51	.11	.14				.42				.67	2.11	2.36	.67	.09	2.38	.14	.12				.08	1.36		14.24
Mammoth Tank	Desert																										.40						0.40
Mariposa	San Joaquin						.84			1.50	.60		.15		.81							.75			.02	.65	1.10						6.42
Marysville	Sacramento					.01	T.			1.43	.02									.77	.03				.68								3.21
Mecca	Desert																										.34						0.34
Melones	San Joaquin						.12			.84	.50	.23	.16								.36	1.12			.13	.24							3.70
Menlo Park	Coast					.05			T.	.70	.17	.17									.19				.08								1.36
Merced	San Joaquin																																
Merced Falls	do					.22				.35	.31	.16			.23						.47			.03	.16	.30							2.23
Mesa Grande	Coast									.76			.91		1.74												2.07						5.48
Mill Creek (1)	San Joaquin					T.	.22		1.63		1.36	.60	.01	T.	1.56					.84	.75	2.10	.21	.02	.21	.71					.07		10.29
Mill Creek (2)	Coast									.70	T.				1.00											.15	.92						2.77
Mills College	do					.05				1.32	.07	.21								.50	.31	.32	.03	.16	.39	.12					.03		3.51
Milo	San Joaquin									.70		1.20	.30		.50							.25					1.70						4.65
Milton (near)	do					.01			1.04	.06	.28			.55						T.	.67	T.	T.	.08		.37			T.	.42		3.48
Modesto	do									.90	.09	.19				.16						.14				.05	.05						1.58
Mojave	Desert									.50																.25							0.75
Mokelumne Hill	San Joaquin					.04			1.18	.55	.06	.40		1.52						.55	1.47		.05	.14	.38	.05					.65		7.04
Mono Ranch	Coast									.59		.18			T.											.86							1.63
Montague	Klamath										.23			.40					.30	.45	.43	.12	.58	.26						.34		3.11
Monterey	Coast										.28	.36	.28		.30						.17					.22							1.61
Monterio	San Joaquin									1.06			.25		.50							.36				.60							2.77
Montgomery Creek	Sacramento																																
Monumental	Coast	1.00				.58	.40	1.88	1.25	2.08	.90	.04	.08	.04				.27	2.35	6.25	.80	6.05	9.60	2.80	.10	.46	.20	.40	.05	2.05	.10		39.73
Morina Dam	do																																
Mount Tamalpais	do								.89	.27	1.00			.15						.52	.45	.07	.02	.35	.11	.02					.03		3.93
Mount St. Helena	do					T.			1.50			.21		.25						1.91	1.70	.48		2.15	.20						2.00		10.40
Napa (1)	do				.05			T.	1.08	.16	.13			.04					.22	.31	.29	.08	.02	.29							.23		2.90
Napa (2)	do					.02				1.13	.17	.08								.07	.17	.25	.14		.17	.20				.05			2.45
Needles	Colorado																										T.						T.
Nellie	Coast									.94		.50	.29		3.65	.20										2.20							7.78
Nevada City	Sacramento					.12			.02	2.00	.45	.12			.66					.98	1.26	1.26	.30	.05	.85	.62	.18				.07		8.94
Newcastle	do																																
Newhall	Coast									.72		.12	T.		.24	T.									1.10								2.18
Newman	San Joaquin									.36		.18														.15							0.69
Nimshew	Sacramento					.06	.08		.53	2.50	.12	.11		.14	.21					.81	2.39	.80	.50	.82	.65	.10	.03				.34		10.19
North Bloomfield	do																																
North Fork	San Joaquin					.60				1.88	.50	.30	.01	T.	1.37							.85			1.20	.60							7.29
North Lakeport	Coast					.04			.99	.10	.10			.10					.10	.46	.60	.03	.06	.01	.22					.08	.50		3.39
Oakdale	San Joaquin						.02			.63	.13	.16			.14							.24			.08	.43							1.83
Oakland	Coast					.07			.35	1.03	.04	.15		T.						.16	.11	.04	.65	.02	.04								2.66
Oakville	do									1.15	.15	.26								.22	.46	.56			.20	.07					.06		3.13
Ojai Valley	do									.31		.10			.14										T.	.55							1.10
Orland	Sacramento				T.				1.07					.13					22	.06	.16	T.								.10		1.74
Orleans	Klamath	.08			.57	.09		.70	1.40	.75	.16			.20			.07		1.72	3.95	1.78	2.43	3.11	.87	.05				.05	1.06	1.10		20.14
Oroville	Sacramento								1.25		.02								.65	.05	.23			.36						1.02		3.58
Ozena	Coast									.60		.30			.15											.55							1.60

TABLE 2.—*Daily precipitation for November, 1909. District No. 11*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Californic—Cont'd.																																	
Palermo	Sacramento								1.18			.16		.45						.54	.21			.15	.05			.07					2.74
Palm Springs	Desert																																0.07
Parkfield	Coast									.77		.29		.23												.65	.15						2.09
Pasadena	...do									.40		.14	.04	.90												.08	.69						2.25
Pasa Robles	...do									.90		.44		.10													.50						1.94
Peachland	...do					.06			1.13	.55	.22	.03		.02						.66	.17	.54	.10	.16	.09						.11		3.84
Penstock Camp	San Joaquin						.33		.98	.70	.22	.36		1.35						.55	2.00	.05			.75	.28	.03				.90		8.50
Peyton	Sacramento								.94	.10	.23										.06		.02	.10	.07							1.52
Phoenix Dam	San Joaquin						.20			1.15	.38	.43			.60					.37	.07	1.53			.11	1.04					.04		5.92
Pilot Creek	Sacramento																																
Pine Crest	Coast																																
Pittville	Sacramento				.60				.70	.50			.30						.50		.70					.50				.70			4.50
Placerville	...do						.24			1.27	.41	.77	.07		1.24					.25	.87	1.87	.21	.13	.31	.91	.09						8.64
Point Lobos	Coast					.04			.06	.86	.41			.12						.06	.13	.19	.06	.09	.29	.01					.11		2.43
Point Loma	...do								.02	.02	.33		.84	.03		.24					.01	.01		.02	.01	.02	1.37	.24					3.16
Point Reyes	...do				.02	.09			.63	.06	.29			.02						.23	.22	.19	.13	.41	.06						.38		2.73
Pollasky	San Joaquin						.09			1.01	.36	.03	.10	.25							.25					.15	.88						3.12
Porterville	...do									.71					.29							.02				.04	.73						1.79
Poway	Coast																																
Priest Valley	...do						.17			.90	.10			.28												.68							2.13
Quincy	Sacramento					.44	.08		.20	1.25	.64	.26		.10	.50					.30	.57		.03	.09	.97						T.		5.43
Red Bluff	...do			.25			.85					.30							.02	.39	.72	T.	.04	T.	T.						.13		2.70
Redding	...do	T.				.04			.26	1.09	.03			.14					T.	.57	1.95	.87	.77	1.32	.02						.24		7.30
Redlands	Coast									.52	.02	.07	.31		.40											T.	.32	.03					1.67
Reedley	San Joaquin						T.			.82		.08			.45												1.30						2.65
Represa	Sacramento						.07			1.10	.04	.32			.11					.06	.15	.86	.04		.16	.56							3.47
Rialto (near)	Coast									1.96	.02	.22	.23	.21	2.66											.43	.99						6.72
Rio Vista	Sacramento									1.16	.02	.22									.24	.10	.04		.04								1.82
Riverside	Coast									.49	.01	.07	.73		.29											.01	.36						1.96
Rocklin	Sacramento						.01			1.17	.01	.22			.10					.07	.11	.75			.36	.31							3.11
Rohnerville	Coast					.55		.10	1.60	.30	.34	.23		.45					.12	.48	3.18	.62	.52	.79	.63	T.	.10	T.			.61		10.02
Sacramento (1)	Sacramento					.02			.50	.27	.08	.02		.01						.02	.27	.01	.02	.01	.02	.05					.02		1.32
Sacramento (2)	...do					.01			.24	.61	.08	.04		.01	.01					.01	.28	.16	.01	T.	.02	.05					.01		1.54
Saint Helena	Coast									1.87	.54	.15								.38	.40	.48	.09	.04	.25						.62		4.82
Salinas	...do									.13	.11				.17						.18	.06											0.65
San Bernardino	...do									.69	.07	.07	.08		.78	.02										T.	.57						2.28
San Diego	...do									.55		.32	.23		.34											T.	.95						2.39
San Francisco	...do					.04			.49	.48	.29			.10						.23	.31	T.	.07	.24	.12	.03					.03		2.43
San Jacinto	...do																																‡1.70
San Jose	...do					T.	.02		.55	.15	.11	.06		.13						.01		.15		.03	.02	.04							1.27
San Leandro	...do					.03				1.27	.03	.13			.03					.31	.11	.24	.02	.14	.19	.15							2.65
San Luis Obispo	...do						T.		.07	1.40	.01	.03		.02	.28							.01				.42							2.24
San Mateo	...do					.01				1.09	.04	.09			.02							.14		.02	.04	.17					.01		1.63
San Miguel	...do						.02			.84	.04	.33			.05											.92	.03						2.23
San Miguel Island	Ocean																																
Sanger	San Joaquin																																
Santa Ana River	Coast									1.26	.01	.29		T.	1.41											.14	.77						3.88
Santa Barbara	...do									.51		.33			.50												1.00						2.34
Santa Clara	...do					T.	.03			.76	.13	.07			.09					T.	.02	.18		T.	.02	.08							1.38
Santa Cruz	...do								1.00		.15			.20						.17	.23					.52							1.77
Santa Margarita	...do						.02			1.45	.05	.13														T.	.65						2.30
Santa Maria	...do									1.00		.16		.20											.10		.69						2.14
Santa Monica	...do									.78		.21		.28											.68								1.88
Santa Rosa	...do					.06			.37	1.03	.46	.08								.67	.33	.59	.18	.19	.39						.18		4.53
Sausalito	...do					.04				.87	.29										1.35	.53		.32	.38						.40		4.18
Selma	San Joaquin						.13			.82	.13		.10		.34	.05						.04					1.51						3.12
Shasta	Sacramento					.18			1.61	.28	.17			1.38						.78	.83	.62	.57	.73						.09	.16	7.40
Shingle Springs	San Joaquin						.05			1.00	.30	.25		.90						.70		1.00	.15		.30	.35							5.00
Sierra Madre	Coast									.62		.18	T.		1.12												.99						2.91
Sisquoc Ranch	...do								1.02			.17														.50	.40						2.09
Sisson	Sacramento				.21				.26				.02	.20	.05				.33	.98	.75	.65	.50	.10						.10	.12		4.27
Soledad	Coast						.04			.30	.05	.12			.17											.15							0.83
Sonora	San Joaquin					.11				1.04	.29	.38							.71	.10	.06	1.44		.02	.09	.51							4.75
Southeast Farallon	Ocean					.04			.99	.13	.09			.03						.13	.15	.01	.10	.22	.09						.13		2.13
Spreckels	Coast									.31	.15	.20			.20						.13	.05				.03							1.07
Stirling City	Sacramento						.40			1.95	.45			.40						.80	1.85	2.60	.80			.30							9.55
Stockton (1)	San Joaquin						.03			.92	.10	.30								T.	.02	.10			.09								1.56
Storey	...do								.15												.44					.34							0.93
Suisun	Sacramento									.65	.06	.18										.17	.15		.14								1.35
Summerdale	San Joaquin						.69			2.14	.88	.41	.05	.01	1.18							1.40			.04	1.10	.80						8.70
Summit	Sacramento																																
Surrey	Coast								.58	.08	.12	.01	.01	..	.44											1.22							2.46
Susanville	Mountain Lake					.23	.01		.10	.62	.25	.03		.04						.15	1.06	.55	.05	.10	.04	.02					.03		3.28
Tamarack	Sacramento						.65			2.30	1.50	1.04	.41	.35	1.40					.35	.55	1.65	.50	.35	.50	2.20	.16				.45		14.36
Tehachapi	San Joaquin									.60		.24		.30			.60						*										1.74
Tehama	Sacramento									1.04				.59							.70												2.33
Three Rivers	San Joaquin						.06			1.93	.03	.02		T.	.56								23			.58	1.20	.06						4.67
Towle	Sacramento						.48			1.70	1.10	.57			T.					1.25	1.85	2.00	.70	.30	.63	1.30								11.88
Tracy	San Joaquin						.25			.92	.09	.25																						1.51
Tulare	...do						.04			.62					10												.77							1.53
Tulare (near)	...do																																
Tustin (near)	Coast									.13	.30		.50		.15	.15												.28						1.51
Ukiah	...do					.08			.52	.62	.25			.19						1.10	.45	.58	.25	.50	.10						.50		5.14
Upland	...do									.52		.26			.04												.61						2.33
Upper Lake	...do								.60	.68	.12			.15						.82	.42	.39	.38	.35	.10	T.					.17		4.18
Upper Mattole	...do	.45	.06		.42	.05	.65	1.65	2.73	.54	.30		.48							1.65	2.52	2.22	1.02	1.98	1.65	.02	.02				1.35		19.16
Vacaville	Sacramento				T.				.70	.08	.18			.06						.08	.22	T.	.03	.09							.04		1.48
Valley Springs	San Joaquin						.04			1.23	.25	.22	.02		.70						.30	1.23	.02		.05	.22								4.28
Ventura	Coast																																
Visalia	San Joaquin																																
Warner Springs	Coast									.24		.55			.91												.96						2.66
Wasco	San Joaquin									.21																	.34						0.55
Watsonville	Coast								.93	.14	.17			.07						.11	.19			.02	.06	.05					.06		1.80
West Branch	Sacramento					.14	.09		.37	1.76	.79	.34		.12	.19					1.06	3.67	1.57	.98	1.18	1.08	.24	.06				.34		13.98
Westley	San Joaquin																																
West Point	...do						.16			1.41	1.43	.43	.16		1.28						.83	2.36	.06	.03	.20	.65	.34							9.34
West Saticoy	Coast									.55		.05			.40											.45							1.45
Wheatland	Sacramento					.02			.05	1.34	T.	.08		.08						.23	.25	.25		T.	.12	.12					.07		2.61
Willows	...do					T.			.33	.52	.05			.04	T.					.10	.02	.01		.01	T.						.03		1.11
Woodleaf	...do					.08			.16	2.52		.36	.24	.26						2.10	3.13	.16	.48	.26	2.98	1.45	.05				.24		14.45
Yosemite	San Joaquin						.80			1.98	1.05	.38			1.20					.15	.09	1.84			.18	1.74	.72				.02		10.15

TABLE 3.—*Maximum and minimum temperatures at selected stations for November, 1909. District No. 11, California.*

Date.	Lakeview, Oreg.		California.																							
			Alturas.		Barstow.		Branscomb.		Brawley.		Colusa.		Eureka.		Fresno.		Independence.		Los Angeles.		Mount Tamalpais.		Nevada City.		Porterville.		Red Bluff.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	59	23	59	41	71	31	65	50	82	39	69	45	63	56	72	42	70	31	83	57	60	49	74	38	75	40	68	48
2	73	23	67	32	76	35	68	46	89	49	76	47	63	54	76	48	71	35	93	65	66	57	79	38	77	42	76	51
3	90	23	69	26	76	36	71	43	93	44	75	46	57	50	78	49	71	35	92	59	69	61	77	39	79	43	76	50
4	59	24	65	25	79	36	63	39	91	45	71	47	59	50	79	47	69	32	73	54	63	49	74	36	80	41	72	49
5	73	24	55	35	77	42	54	41	89	51	70	50	54	44	74	44	68	34	67	50	49	44	60	37	75	42	58	48
6	47	19	51	27	67	40	55	29	85	53	60	40	59	40	67	50	68	37	69	52	52	40	59	37	61	44	62	42
7	48	20	54	29	70	32	54	38	83	48	61	45	61	53	66	41	66	34	72	51	55	43	50	31	69	39	59	39
8	51	20	51	33	73	34	54	39	83	40	59	44	58	50	66	48	67	35	76	51	49	44	50	33	74	39	52	42
9	40	19	43	31	66	36	45	40	79	56	63	46	56	46	61	50	57	38	62	51	48	41	52	37	60	50	58	43
10	38	20	42	30	59	42	53	39	72	47	62	50	55	45	64	47	56	29	63	48	46	41	46	39	61	41	59	46
11	34	21	37	14	60	35	56	29	70	48	58	42	51	41	57	43	53	31	61	49	46	37	56	37	56	44	56	38
12	38	12	38	18	58	40	61	29	67	47	61	40	52	35	57	34	50	30	66	48	50	40	63	26	58	36	59	46
13	36	17	36	28	63	31	47	36	73	40	59	39	49	41	59	42	52	22	63	47	51	36	51	35	60	38	55	42
14	28	11	36	20	58	41	54	27	69	53	59	41	51	34	54	42	48	31	57	46	47	33	49	30	52	45	55	40
15	40	10	46	9	54	27	56	27	67	41	55	34	55	35	57	35	51	25	64	42	44	38	53	23	58	35	57	35
16	54	21	48	11	55	24	58	27	68	34	51	29	53	37	58	35	53	21	71	48	46	37	62	24	61	31	56	32
17	38	0	61	28	60	26	63	31	74	36	61	33	66	43	62	36	60	25	77	52	57	42	70	28	65	32	62	40
18	68	23	58	26	62	29	51	36	78	35	61	33	60	54	66	37	61	27	80	57	56	49	66	30	68	37	56	37
19	73	24	50	36	64	30	57	47	77	36	56	34	60	56	65	38	59	30	69	51	55	48	53	30	67	36	56	46
20	56	25	50	44	75	34	55	49	78	40	64	50	57	55	71	50	71	32	69	47	54	50	53	49	67	46	60	56
21	46	21	49	37	68	53	55	50	73	43	65	56	61	55	69	54	70	45	64	53	55	50	54	48	70	45	62	56
22	60	27	57	41	70	45	55	52	81	43	70	56	63	59	71	47	67	34	70	53	61	52	55	49	72	49	67	59
23	49	24	59	46	70	41	55	52	83	46	67	54	61	57	69	46	67	33	77	48	54	51	54	51	70	52	62	58
24	45	21	56	41	75	38	53	42	82	45	67	55	58	46	64	50	66	33	62	45	54	47	54	49	71	52	66	56
25	43	23	44	32	70	45	48	34	78	45	69	56	53	41	59	49	59	44	60	52	47	37	52	42	59	53	56	44
26	38	17	38	24	63	40	43	26	63	46	56	33	51	38	54	40	54	35	62	49	42	35	50	31	54	44	55	38
27	39	13	44	16	63	30	51	26	65	44	54	32	55	37	53	35	55	28	64	46	48	38	55	24	55	36	55	35
28	65	14	62	27	63	24	62	32	66	42	57	47	63	48	59	39	69	33	67	47	50	42	63	29	59	33	57	41
29	53	14	58	27	62	30	55	34	70	34	55	35	63	46	60	40	65	32	66	46	51	46	63	30	60	35	60	40
30	46	14	46	37	64	34	53	48	70	36	56	41	57	48	61	41	66	32	67	48	56	47	52	31	64	36	50	48
31																												
Mns	50.9	19.0	51.0	29.0	66.4	35.4	55.7	37.9	76.6	43.5	62.2	43.3	57.5	46.5	64.3	43.3	62.0	32.1	69.5	50.4	52.7	44.1	58.3	35.4	65.2	41.2	60.1	44.8

Date.	California.																									
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Sisson.		Stockton.		Summit.		Susanville.		Yosemite.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	87	43	71	47	73	52	69	51	68	47	80	58	73	46	74	46	66	34	70	45	.....	.....	62	31	.....	.....
2	91	46	76	50	85	56	73	52	76	43	82	69	78	45	80	43	73	30	74	46	.....	.....	60	30	.....	.....
3	92	47	75	52	80	53	74	50	77	43	89	44	88	47	79	44	72	29	74	48	.....	.....	62	31	.....	.....
4	83	46	74	52	63	47	58	49	64	46	67	36	90	51	67	41	72	36	73	46	.....	.....	64	32	.....	.....
5	74	40	62	51	63	54	58	51	65	50	64	48	62	48	60	50	67	22	64	46	.....	.....	61	31	48	24
6	65	41	64	43	64	53	60	48	65	41	66	44	66	44	63	31	42	22	62	43	.....	.....	49	30	47	34
7	80	38	61	44	65	48	61	49	67	38	70	40	69	43	66	33	43	38	61	39	.....	.....	43	25	55	26
8	78	42	57	49	74	51	61	51	68	41	70	40	68	44	57	41	43	32	60	45	.....	.....	53	26	53	30
9	59	49	62	50	63	54	60	53	63	51	58	47	65	47	60	45	42	31	61	50	.....	.....	44	35	55	29
10	60	43	58	48	62	52	55	49	60	49	63	46	65	49	57	44	42	27	60	49	.....	.....	42	30	44	29
11	56	46	58	46	59	50	60	48	59	43	57	45	61	44	59	36	40	26	58	45	.....	.....	40	32	41	29
12	63	44	61	44	63	50	64	50	63	39	62	43	67	47	65	39	43	26	57	40	.....	.....	42	21	43	23
13	62	39	57	44	61	48	58	49	57	39	55	38	64	40	60	39	42	25	57	40	.....	.....	42	29	42	25
14	54	46	53	39	59	53	56	45	56	36	53	38	57	43	58	30	52	15	54	41	.....	.....	39	28	45	22
15	62	34	56	35	61	47	56	44	60	31	61	37	60	38	61	26	40	16	54	30	.....	.....	34	13	46	14
16	68	34	56	34	63	46	56	44	61	30	67	35	66	38	61	26	40	20	55	28	.....	.....	38	13	44	12
17	76	38	63	39	68	47	62	48	66	34	72	38	68	41	65	33	54	33	59	33	.....	.....	42	24	47	23
18	80	41	63	41	72	51	60	47	65	34	67	36	73	41	60	30	50	37	61	35	.....	.....	52	24	49	24
19	73	42	56	52	66	50	60	51	64	45	72	43	67	39	59	49	47	41	62	46	.....	.....	55	35	45	27
20	73	43	59	54	60	44	59	57	71	57	71	53	64	40	59	55	48	39	63	47	.....	.....	53	46	50	32
21	63	43	62	54	59	52	62	55	70	54	69	52	63	50	60	53	49	40	61	55	.....	.....	53	49	48	38
22	78	40	67	57	65	55	62	55	72	54	76	58	72	49	60	56	52	22	68	55	.....	.....	59	39	56	28
23	81	49	62	54	64	52	60	55	70	56	73	55	75	51	61	56	41	23	62	52	.....	.....	55	44	55	29
24	76	45	62	56	56	47	60	52	66	55	72	52	59	47	61	55	48	31	61	56	.....	.....	56	44	54	39
25	55	46	54	43	60	53	54	48	55	40	55	50	56	53	57	44	47	22	60	50	.....	.....	48	37	49	30
26	55	45	54	37	59	53	57	47	54	34	55	45	63	48	55	30	41	19	55	38	.....	.....	44	23	41	29
27	59	44	55	34	59	44	55	43	57	31	58	40	64	37	56	28	41	23	56	34	.....	.....	49	20	39	21
28	69	35	59	36	61	42	60	46	61	33	63	46	70	40	61	31	40	25	54	33	.....	.....	43	24	42	21
29	66	37	60	39	68	45	54	48	56	39	67	39	63	41	58	36	45	33	58	36	.....	.....	46	25	43	26
30	67	36	58	46	62	44	57	50	66	46	70	52	63	43	58	42	45	36	60	40	.....	.....	54	25	49	27
31																										
Means	70.4	42.1	61.2	45.7	64.6	49.8	60.0	49.5	64.1	42.6	66.8	45.6	67.3	44.4	61.9	40.4	49.2	27.6	61.1	43.0	.....	.....	49.5	29.9	47.3[d]	26.6[d]

Climatological Data for November, 1909.

DISTRICT No. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

November was a very stormy month in this district; two vessels were lost on the coast, and floods did much damage to property in the interior. In the disasters at sea, 10 persons were drowned; and the heavy rains and floods caused the loss of 3 lives. The damage to property is estimated at more than a million dollars, with the railroads the principal losers, the lumbermen second, and the shipping interests third. Many farmers had their lands overflowed and fences washed away; several county bridges were damaged; a number of power plants were obliged to close their works; a few dams were seriously injured; navigation on the rivers was impeded by driftwood, and rendered hazardous on account of the swiftness of the current; mails were delayed, and the traveling public were greatly inconvenienced by washouts and mud slides.

The first damaging floods occurred early in the month in the rapidly flowing streams in western Washington, due to the heavy rains the last of October, which continued for two days in November. The floods were unimportant beyond bringing down great quantities of driftwood, and doing a small amount of damage to railroad tracks and causing the loss of a few logs. They quickly subsided, and a period of normal weather prevailed until the 10th, when the barometer began to rise, and anticyclonic conditions with temperatures below the seasonal average were the distinguishing features of the weather for several days. It was during this period that killing frosts were experienced nearly to the coast line, and the growing season over a large area west of the Cascade Mountains came to an end.

On the morning of the 17th a low-pressure area was noted off the Washington coast, and from this time nearly to the close of the month storms followed one another in quick succession. Mild temperatures prevailed during the greater portion of this stormy period and the precipitation was mostly in the form of rain, which thoroughly saturated the soil and later caused very damaging floods in many rivers and small streams.

High winds were frequent during the passage of the storms, and they were especially severe on the 18th, when a maximum velocity of 90 miles an hour from the southeast was reported at North Head, Wash., and 56 miles an hour from the south at Seattle, Wash. It was not until later, however, that the disasters at sea occurred; the steamer *Argo*, valued at $35,000, being wrecked in entering Tillamook Bay on November 25, and the British 4-masted bark *Matterhorn* foundering at sea about 75 miles southwest of Cape Flattery on November 30. Besides the loss of both vessels and their cargoes, 6 lives were lost in the *Matterhorn* disaster and 4 in the wreck of the *Argo*.

The first snow of consequence fell in the valleys between the Rocky and the Cascade mountains at the beginning of the second decade, and light falls of snow were afterwards recorded on several dates; but at the end of the month the ground was bare in nearly all the wheat-growing sections, and the snow-line in the mountains was much higher than usual.

TEMPERATURE.

The temperature averaged nearly 2° above normal over the upper half of the Columbia Valley, and it was about normal over the lower half. Nowhere, except at high elevations, was the mean temperature below the freezing point. The warmest region was along the coast, where the temperature averaged between 45° and 50°, and the coldest was at the headwaters of the Snake River in Wyoming, where the mean temperatures ranged between 28° and 31°. In the Snake River Valley, below the mouth of the Raft River, and in the Columbia Valley, between The Dalles and Wenatchee, the mean temperatures were 40° or above, being in a few localities as high as 45°.

The temperatures were above normal nearly everywhere between the 1st and the 10th, and again between the 18th and the 25th. The coldest weather prevailed between the 11th and the 16th, at which time killing frosts were general, and some ungathered fruit in Latah County, Idaho, was damaged, this being the only loss by fall frosts reported during the month. In a number of localities near the headwaters of streams in Montana and Wyoming, temperatures fell to zero, or a trifle below, but the periods with very cold weather were so short that no damage was done to the agricultural or engineering interests in the regions affected.

The highest mean temperature was 50.4° at Gold Beach, Curry County, Oreg., elevation 400 feet, and the lowest was 28.4° at Snake River, in the Yellowstone National Park, at an elevation of 7,000 feet. The highest temperature was 81° on the 3d, at Lowry in the Owyhee Basin in Idaho, and the lowest was −11°, which mark was reached at Pleasant Valley, in the Kootenai Drainage Basin in Montana, on the 14th, and at Bedford, in the Snake Valley in Wyoming, on the 28th.

PRECIPITATION.

The precipitation was above the normal in all sections, and in a number of localities it was much above the normal. That portion falling as rain was greater than usual, and in many high localities where usually a large quantity of snow falls in November, but little fell this year, and although the ground became thoroughly saturated by the rains, the lack of a foundation of early snow to slowly melt in the early summer will result in a diminished flow of late irrigation water next year unless the deficiency is overcome in other ways.

The precipitation was heaviest along the west slope of the Coast Mountains, where the amounts generally ranged between 20 and 40 inches; on the west slope of the Cascade Mountains the amounts were generally between 15 and 20 inches; and in the valleys between these two ranges the total fall ranged between 10 and 15 inches. In the sections between the Cascade and the Rocky Mountains, the monthly precipitation varied between 0.12 inch and 20 inches, being heaviest at high elevations on windward slopes and least at low elevations on leeward slopes.

The period with heaviest rainfall was from the 17th to the 24th, and precipitation was general on the 1st and 2d, and again between the 9th and the 13th. The driest portion of the month was on the 15th and 16th, when the only precipitation noted was of a local character. The heaviest monthly amount was 50.20 inches at Glenora, a station in Tillamook County, Oreg., on the west slope of the Coast Mountains; and the least monthly amount was 0.12 of an inch at Telocaset in Union County, Oreg. The greatest 24-hour fall was 6.84 inches at Happy Home, Coos County, Oreg., on the 22d, and on the same day excessive amounts were recorded in Oregon as follows:

Greenleaf, Lane County	6.82 inches.
The Heads, Curry County	6.50 inches.
Elkhorn Ranch, Coos County	6.40 inches.

Also on the 28th a fall of 6.33 inches occurred in 24 hours at Quiniault, at the base of the Olympic Mountains in northwestern Washington.

RIVER CONDITIONS.

Both the Columbia and Snake Rivers averaged between 1 and 2 feet higher than usual, but there were no floods in either

of these streams. Beginning early in the month they gradually rose, and it was not until near the closing days that their maximum stages were reached. During the last 2 or 3 days a slight fall occurred at most of the reporting stations on these two rivers.

The smaller tributaries of the big rivers, as well as those draining into Puget Sound and the Pacific Ocean, rose rapidly early in the month, and in western Washington unimportant floods occurred. This high water was of short duration, but the preceding rains had thoroughly saturated the soil and the normal rainfall that followed was sufficient to keep all streams at higher stages than usual until the event of the heavy rains between the 17th and the 24th, which caused a second rise that proved to be the most damaging one of the season.

The Nooksack, Skagit, Stillaguamish, Snohomish, White, Green, Nesquali, Chehalis, Cowlitz, and Lewis rivers in Washington, and the Deschutes, Willamette, Wilson, Yaquina, and Coquille rivers in Oregon, all overflowed and did great damage along their courses, especially in the bottom lands near their mouths. No records are available showing the past or present stages of any of these rivers except the Willamette, and a special report covering the flood in that stream has been prepared. The floods in the Nooksack, Chehalis, and Deschutes rivers were reported to be the highest known by the inhabitants living in those valleys. The damage done was enormous, and 3 deaths can be traced to the effects of the heavy rains and resulting floods; 2 were locomotive engineers who ran into slides and lost their lives in the wrecks of their engines, and 1 was a young man who slipped from a hastily constructed raft he was using to get from his house to the barn for the purpose of feeding some stock; he was drowned in the swift current before bystanders could rescue him.

The greatest damage was done to the railroads by washouts and slides, and it was several days before trains were able to run on some of the divisions of the Great Northern Railway, and in many places traffic on the Northern Pacific Railway was interrupted for short periods. Quantities of logs broke from their fastenings and were carried away by the swift current, some of which were afterwards recovered at great expense, and some were carried to sea where they became a menace to navigation along the coast between Cape Flattery and Cape Blanco. The damage to bridges along the Deschutes River was especially heavy, due to the fact that the stream had the reputation of having a very uniform discharge and the necessary precautionary measures were not taken in building the approaches, and fastening the ends of the bridges to them. Almost every industry was affected, either directly or indirectly, and the estimated damage of a million dollars is a very conservative one.

The warnings issued by the Weather Bureau were accurate and timely and, in the case of the Willamette Valley flood, were the means of saving thousands of dollars worth of property. The shipping interests were also benefited by the warnings to an unknown extent, a partial realization of which may be inferred from the fact that the principal losses were to vessels at sea, and the captains of those within reach of information were enabled to protect their vessels from being seriously injured.

IRRIGATION IN IDAHO.

The work of gathering precipitation data from the headwaters of the various streams in Idaho is one of great importance, for the reason that irrigation development is proceeding with greater rapidity in this section than in almost any other part of the country. Already the Snake River furnishes water to irrigate more land than any other stream in the United States, and every season sees large areas reclaimed in the valleys of the Snake and its tributaries. In planning the works for these irrigation projects the engineers are guided largely by the Weather Bureau reports of precipitation. Unfortunately, in many of the smaller drainage areas, data relative to precipitation are either entirely wanting or so fragmentary as to be of doubtful value. The plan adopted in 1908 for establishing, equipping, and maintaining mountain snowfall stations would do much to overcome this difficulty, if funds were available to carry it out. In this State, however, the work is at a standstill owing to lack of funds.

IRRIGATION IN ROGUE RIVER VALLEY, OREGON.

The Rogue River Reservoir and Irrigation Company is constructing an irrigation system that will irrigate 45,000 acres of fruit land in the heart of the Rogue River Valley. The source of water supply is Little Butte Creek, a tributary of Rogue River. The supply from the natural flow of the creek will be supplemented by "stored" water to be drawn from Fish Lake and Four Mile Lake, whose combined storage capacity of 35,000 acre-feet is being developed by the construction of low rock-fill dams at their outlets. The main canal after leaving Little Butte Creek encircles the entire valley surrounding the city of Medford, and in a length of 65 miles supplies practically all of the valuable fruit land of that section. The cost of the project is estimated to be $1,250,000 and construction is to commence March 1, 1910.

The company owns 7,000 acres of land which will be put under irrigation, partially improved, and sold in small tracts.

The development of this project is of peculiar interest because it marks the adoption of irrigation on an extensive scale in western Oregon, where the climatic conditions are semi-humid in character, and where up to the present time all agriculture has depended upon the natural rainfall alone. The rainfall in this section averages 24 inches annually; but of this amount, only about 10 per cent comes during the crop-growing season.

POWER IN THE COLUMBIA AND SACRAMENTO RIVERS.

Mr. M. O. Leighton, of the U. S. Geological Survey, states in a recent article that the power possibilities in the basins of the Columbia and Sacramento rivers are about one-third of those of the whole United States. He estimates the minimum horse-power available in these valleys to be 12,979,700, with an assumed maximum development of 24,701,000.

FLORES LAKE, OREGON.

Articles of incorporation for the Pacific City Canal Company were recently filed at Salem, Oreg. This company proposes to connect Flores Lake with the Pacific Ocean by a deep-water lock canal. Flores Lake is a body of fresh water in Curry County, Oreg., which is said to have an average depth of 40 feet. The plans of the company comprehend the immediate completion of the canal and also the construction of 50 miles of railroad to connect the harbor with interior points. The surrounding country is thickly forested and there are coal mines only 8 miles from the harbor which it is believed can be profitably worked.

McKENZIE RIVER.

Mr. J. L. Lambirth, manager of the Northwestern Corporation, announces in the press that his company will soon begin the construction of a dam 45 feet in height across the McKenzie River, near Martins Rapids. When completed the plant will have a capacity of 15,000 horsepower, and will cost in the neighborhood of a million dollars. The power generated will be used at Springfield, Eugene, Irving, Junction City, Harrisburg, and Albany, Oreg.

THE DALLES-CELILO CANAL.

In the specifications for The Dalles-Celilo Canal, the U. S. Engineers have incorporated under the head of "Working season" an item regarding the average weather conditions at The Dalles, Oreg., which shows one of the advantages to be obtained from a well-kept weather record. The Dalles-Celilo Canal will cost a million or more dollars and the knowledge gained by the weather record, which has been kept for over 30

years, will enable the contractors not only to estimate more closely on the job, but the successful bidder will be able to plan to utilize the unfavorable season for the assembling of material and the favorable season for pushing the work of actual construction.

Freshets at The Dalles, Oreg.

The annual freshet which occurs about April 15 and ends about the middle of August will cause a suspension of active work for a period of about 4 months, though some of the work on the higher levels can probably be carried on during a portion of the freshet season.

During the winter months occasional freshets occur, due to the fall rains, which might interfere with the work on the lower levels. Ice gorges occur, rarely, in January and February.

The summer and winter freshets, and snow and ice, cover a period of a little over 4 months. The remainder of the year is generally favorable for construction work.

The U. S. Weather Bureau records at The Dalles, covering a period of 34 years to January, 1909, show that on an average the thermometer reaches or falls below 32° on 74 days of each year, and that the average temperatures for the months of January, February, and December are 32.4°, 34.0°, and 36.1°, respectively. The mean annual precipitation for 34 years is 14.17 inches. In the last 13 years running ice has occurred 6 times in January and 3 times in February.

CAPACITY OF SPILLWAYS.

Messrs. Whistler & Stubblefield, hydraulic engineers, of Portland, Oreg., in referring to some recent very high waters in the Columbia Valley, state they illustrate the necessity of providing ample spillway capacity in the construction of dams, on which subject they further remark as follows:

It is unsafe to provide only for the largest flood known, even though observations on the behavior of the river cover a long period. To provide capacity for double the largest flood known within the last 20 or 30 years is, in some cases, entirely too small. The flood in the Deschutes River at Bend, Oreg., in November, for example, reached a height that gave twice as large a discharge as any previous flood so far as can be determined from the records, or from information furnished by the early settlers.

Another instance of a flood that could not have been foreseen from records, or from information obtained from early settlers, is the one that occurred in 1907 down Cold Spring Canyon, which canyon is now known as Cold Spring Reservoir on the Government Irrigation Project in Umatilla County, Oreg. A flood of more than 5,000 cubic feet per second washed out three-quarters of a mile of the Oregon Railroad and Navigation Company's track at Cold Spring siding that year. No flow from this canyon had reached the track since the construction of the railroad about 25 years before, and no opening whatever had been provided. The only way in which such a flood could have been foreseen would be to take into consideration the area drained, and allow for extremely unusual weather conditions.

HYDROGRAPHY OF THE SOUTH PALOUSE RIVER, WASH.

By HANS MUNN, jr., Civil Engineer.

THE VALUE OF HYDROGRAPHY.

One of the greatest resources of the United States lies in the running water. The first in time, if not in importance, of the objects of hydrography is undoubtedly that pertaining to navigation. This part of hydrography may almost be considered at an end, requiring for the most part merely the continual revision necessitated by some changing conditions due to erosive or artificial clearing of some of the important streams.

Next we have the demands for information concerning the water that, through its velocity and change from higher to lower levels, furnishes power for so much of our machinery. If the streams continued to flow unvaryingly through the different seasons of the year it would be a very easy matter to ascertain the power that would be relied upon but, with their constant fluctuations day by day, it becomes a problem taking years of measuring to determine the power available through all the seasons of the year. At certain seasons the amount of water may be greatly in excess of any possible utilization, and then again there comes a season during which the quantity drops below that required for the water wheel, and the storage of flood waters must be resorted to.

In the United States there has arisen a third demand for knowledge of the water resources, which in political and social importance ranks even above the needs of navigation and manufacturing. This is through the extension and higher development of agriculture by the artificial application of water. One-third of the total area of the nation is still at the disposal of Congress, and this one-third includes some of the most fertile areas of the Continent. It is, however, practically unavailable to the settler, usually a man of small means, because of the fact that the climate prevailing through the vast extent of this public land is too arid to allow the growth of ordinary farm crops. Irrigation must be practised and where it has been employed so far it has been very notably successful; but the supply of water is scanty and in many cases before an acre of the best land can be cultivated an enormous expenditure must be made in the construction of reservoirs, canals, and ditches. Lately the Government has undertaken the work to build large reservoirs, construct canals and ditches, and thus in every way make possible the utilization of the vast extent of arid land. Before plans involving the utilization of these lands can be made it is necessary, however, to obtain accurate knowledge as to the available water supply both above and below the ground, and of the possibilities concerning floods and of raising water by machinery from lower to higher levels. With the fluctuations which take place from year to year, it is obvious that such investigations must be continued for periods sufficiently long to show the ordinary range of conditions.

There is yet another series of investigations which, though individually of local concern, are found where civilization progresses. These pertain to the supply of water for domestic and municipal use. The quantity is almost insignificant in comparison with those required for navigation, water power, or irrigation. But while the quantities are small the quality is of great importance, for upon it depends the life and health of the masses of the people in the cities. As a rule each city or town makes its own investigations regarding the source of supply and the amounts obtainable from watersheds. The time is approaching when vigorous steps must be taken to prevent stream pollution, and in the mean time a thorough knowledge must be obtained of all possible sources of supply.

THE GEOLOGY AND TOPOGRAPHY OF THE DRAINAGE BASIN.

The drainage area of the South Palouse River, from Pullman to its head, lies almost wholly in the Palouse wheat raising section. About nine-tenths of the area is under cultivation of which about one-half is summer fallowed each year, the other half is covered with a rich growth of grain during the summer months. The whole area is treeless with the exception of a few willows along the creeks and about 12 square miles of timber in the extreme northeastern part, lying along the Thatuna Hills.

The whole area is a rolling basaltic plateau, bordered on the northeast and the southeast by a low range of foot hills, the area has a general slope toward the southwest, the South Palouse flows very nearly through the center of it. The principal branch of the South Palouse, Paradise Creek, which flows nearly parallel to it, drains the northern portion and joins it near Pullman. The stream heads in the Thatuna Hills and flows southwestward in shallow channels at first, which increase progressively in depth until at Pullman they are nearly 200 feet in depth.

The deep, rich soil covering the area is a residual soil formed by the disintegration and decay of the underlying lavas. The only basalt seen are the outcroppings along the channels of the streams, and in the stream bottoms. At a depth usually of 5 to 8 feet below the surface the dark color of the upper soil fades

away and the subsoil, equally fine and homogeneous and having the same mineral composition but of a light and usually a yellowish color, is revealed. The subsoil varies in depth with the relief of the surface and with the topography of the underlying hard rock surface, but is nearly always deep. Chemical analyses of a large number of soils from various localities in Washington and Idaho, including samples from the basaltic plateau have been made by the chemists of agricultural experiment stations at Pullman and Moscow. These analyses show that the chemical composition of the soil on the basaltic plateau is such as might be expected to result from the weathering of the solid rock beneath.

One feature of the hills which especially attracts attention is that they are usually steep on the northwest side and slope gently toward the southwest. The steeper sides frequently have a slope of 20° and more, and in many instances are slightly concave when seen in profile, while the more gentle sloping sides descend at angles measuring 5° to 8° and are frequently convex.

EXPLANATION OF TABLES.

The gaging and ratings of the South Palouse River were taken at the foot-bridge on Pine street, Pullman, Wash.

Gagings were made daily with a rod measuring to tenths. On account of floods occurring it was thought impracticable to put in a stationary gaging rod, and so a bench-mark was determined at the floor beam of the foot-bridge from which distances were measured down to the water. Table 2.

To make the ratings a Price current meter was used. This gives the revolutions by clickings caused by the making and breaking of an electric current furnished by a cell.

Readings were taken for a minute's time at each of the 2-foot sections across the stream. At most of the sections readings were taken a number of times and the average therefrom obtained. The revolutions thus secured were reduced to feet per second from a table rated for that particular meter. Table 1.

A cross-section (see fig. 1) was made of the stream parallel to the foot-bridge, which is at an angle of nearly 33° with the

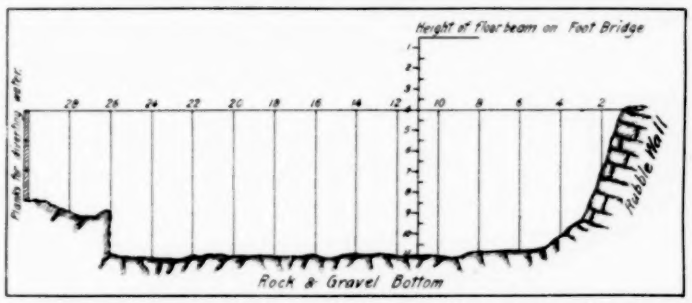


FIG. 1.—Cross-section of the South Palouse River at the Pine street gaging station, Pullman, Wash.

flow of the stream, so that in order to have the right cross-section each area was multiplied by cos 32° 52′, which is 0.84.

TABLE 1.—*Current meter readings from which the discharge curve was computed, as measured in 14 sections between banks at 5 gage heights.*

Section.	1	2	3	4	5
2	130	84	170	.....	.....
4	138	88	188	38	7
6	142	96	206	43	15
8	148	126	220	44	18
10	160	126	248	43	30
12	116	116	250	49	39
14	150	102	280	46	36
16	144	90	280	38	34
18	134	78	276	34	22
20	121	70	250	32	16
22	108	56	212	27	11
24	94	38	208	19	9
26	71	20	168	.....	.....
28	60	12	108	.....	.....

In Table 1 are recorded the revolutions of the current meter per minute's time for each section of the stream.

Having thus the velocity and the area of the cross-section the quantity can be found by using the formula $Q = AV$. The quantities thus obtained from the gage heights rated were plotted on cross-section paper, to form a rating curve, as shown on fig. 2, the gage heights reading from bench-mark on foot

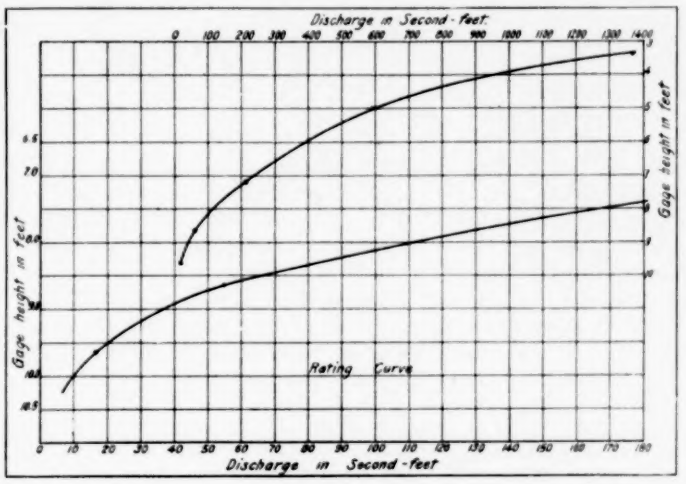


FIG. 2.—Rating curves for the Pine street gage, Pullman, Wash.

bridge down to water surface, and the discharge reading in cubic feet per second. Gaging is plotted as ordinates and discharge as abscissas.

Table 2 gives the run-off each day at different gage heights as read from the rating curve.

TABLE 2.—*Gage heights and run-offs.*

	January.		February.		March.		April.		May.		June.	
	Gage.	Amt.	Gage.	Amt.	Gage.	Amt.	Gage.	Amt.	Gage.	Amt.	Gage.	Amt.
	Feet.	*Sec-ft.*	*Feet.*	*Sec-ft.*	*Feet.*	*Sec-ft.*	*Feet.*	*Sec-ft.*	*Feet.*	*Sec-ft.*	*Feet.*	*Sec-ft.*
1	9.5	.....	9.3	26	6.9	254	8.7	52	9.3	26	10.0	10
2	.....	.....	9.3	26	7.2	212	8.7	52	9.4	23	10.0	10
3	.....	.....	9.3	26	7.2	212	8.8	46	9.5	20	9.9	11
4	.....	.....	9.4	23	7.2	212	9.0	37	9.6	17	9.9	11
5	.....	.....	9.5	20	7.2	212	8.9	42	9.7	15	10.0	10
6	.....	.....	9.6	17	7.2	212	8.8	46	9.7	15	10.0	10
7	9.5	20	9.6	17	7.3	200	8.9	42	9.8	13	10.0	10
8	9.5	20	9.7	15	7.4	189	9.0	37	9.7	15	10.0	10
9	9.5	20	9.7	15	7.6	164	9.0	37	9.4	23	10.0	10
10	9.4	23	9.8	13	7.8	140	9.1	33	9.4	23	10.0	10
11	9.4	23	9.9	11	8.2	92	9.2	29	9.5	20	10.0	10
12	8.0	110	9.8	13	8.2	92	9.2	29	9.5	20	10.0	10
13	5.0	591	9.7	15	8.3	83	9.3	26	9.7	15	9.9	11
14	5.4	503	9.6	72	8.4	74	9.4	23	9.8	13	10.0	10
15	7.2	212	9.0	37	8.4	74	9.4	23	9.9	11	10.0	10
16	7.6	164	3.4	1,366	8.5	66	9.4	23	9.7	15	.....	.....
17	8.1	100	6.8	265	8.6	58	9.4	23	9.7	15	.....	.....
18	8.5	66	7.8	140	8.6	58	9.4	23	9.6	17	.....	.....
19	8.6	58	8.5	66	8.7	52	9.3	26	9.5	20	.....	.....
20	8.7	52	6.9	254	8.8	46	9.3	26	9.6	17	.....	.....
21	8.8	46	7.8	140	8.7	52	9.3	26	9.7	15	.....	.....
22	8.7	52	8.2	92	8.4	74	9.4	23	9.7	15	.....	.....
23	8.5	66	7.6	164	8.8	46	9.4	23	9.8	13	.....	.....
24	8.7	52	7.4	189	8.8	46	9.4	23	9.8	13	.....	.....
25	8.8	46	7.1	224	8.8	46	9.5	20	9.8	13	.....	.....
26	8.9	42	6.5	307	8.9	42	9.6	17	9.9	11	.....	.....
27	8.9	42	8.6	265	8.9	42	9.6	17	9.9	11	.....	.....
28	8.9	42	6.9	254	8.9	42	9.6	17	10.0	10	.....	.....
29	9.1	33	.....	.....	9.0	37	9.7	15	10.0	10	.....	.....
30	9.3	26	.....	.....	9.0	37	9.6	17	10.0	10	.....	.....
31	9.2	21	.....	.....	8.9	42	.....	.....	10.0	10	.....	.....

Part of the drainage area was secured by observing where the watershed crossed the section lines and partly from government and county maps. The area was secured by using cross-section paper and checking with a planimeter.

In Table 3 the maximum, minimum, and mean quantity in the stream each month is given in second-feet and the total discharge in acre-feet. To obtain this total for the month in acre-feet the usual practise is to multiply the mean daily dis-

TABLE 3.—*Discharge of South Palouse River at Pullman, Wash. Drainage area, 120 square miles.*

Month.	Maximum.	Minimum.	Mean.	Total for month.	Run-off.	
					Depth.	Per square mile.
1901.	*Sec.-ft.*	*Sec.-ft.*	*Sec.-ft.*	*Acre-ft.*	*Inches.*	*Sec.-ft.*
January 7 to 31	591	20	97	3,811	.59	.80
February	1,366	11	143	7,936	1.24	1.19
March	254	37	103	6,334	.99	.85
April	52	15	29	1,725	.27	.24
May	26	10	16	984	.15	.13
June 1 to 15	11	10	10	297	.05	.08
For period	1,366	10	66	21,087	3.29	.65

charge for all months, except February, April, June, September, and November, by 55.5, these having 31 days, and for the remaining months by 59.5.[1] This involves a small area, but far within the range of accuracy of the original observations. These factors are the number of seconds in a month divided by the number of square feet in an acre, 43,560 square feet.

For example:

Number of days in May = 31, therefore our factor would be,

$$\frac{31\times24\times60\times60}{43560}=61.5$$

In fig. 3 is plotted the depth of rainfall and run-off for each month and during the period. It will be seen by the curve

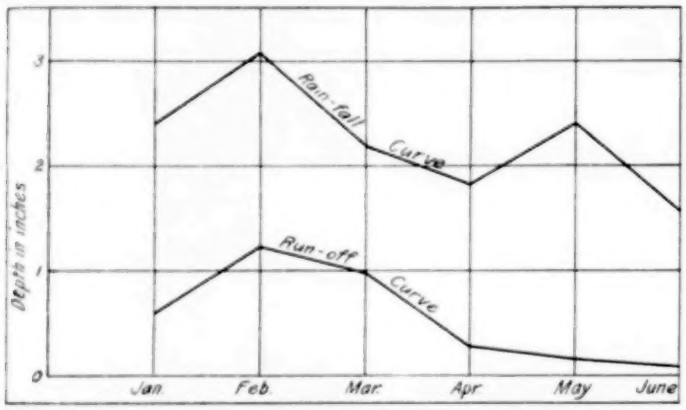


FIG. 3.—Curves showing the relation between rainfall and run-off.

that the difference between the rainfall and the run-off is less in the winter months, when the ground is frozen and the temperature low, than in the summer months when more of the moisture soaks into the ground and the evaporation is greater. It will be especially noticed that the difference between the run-off and the rainfall in February and March is less than in any other month. During these months the ground was frozen part of the time and the heaviest rainstorms occurred. On February 16 we had the greatest flood. It began to rain on the 14th and continued for nearly 2 days. On the night of the 15th the river rose rapidly and reached its highest at noon on the 16th. The flood lasted only about 24 hours, and during the night of the 16th it fell 3 feet and continued falling gradually. In May the curve of rainfall increases, but the curve of run-off falls off by nearly its former amount. This is probably accounted for by the fact that the ground in May was in a condition to absorb much of the rainfall and also the evaporation carried off a greater amount than in previous months.

The maximum discharge from the catchment basin tributary to a reservoir is a factor of great importance in designing its dam or wasteway. Several formulas for ascertaining the maximum discharge from a given catchment basin have been obtained both empirically from known measurements and by theoretic processes. Mr. J. T. Fanning found by plotting a curve derived from the flood discharges of some American streams that the resulting equation for flood flow became $D=200\ (M)\ 5/6$, in which M is area of catchment in square miles, and D the volume of discharge of the whole area in second-feet. Taking the same C, as used by Fanning, namely, 200, the flood discharge of 1,366 second-feet, which occurred over the catchment area of the South Palouse on February 16, 1901, and for M the area of basin, that is 120 square miles, an exponent is obtained somewhat lower than Fanning's, in the formula $D=C\ (M)^{x}$.

Example for obtaining exponent x.

$$D=C\ (M)^{x}.$$
$$1366=200\times120^{x}.$$
$$120^{x}=6.83.$$
$$x\log120=\log6.83.$$
$$x=\frac{\log6.83}{\log120}=\frac{0.8343}{2.0792}=0.401$$

Exponent 5/6 of Fanning's formula reduced to a decimal in order to compare the exponents is 0.723 instead of 0.401.

TABLE 4.—*The relation between rainfall and run-off during the period of observation. Compare fig. 3.*

1901.	January 7 to 31.	February.	March.	April.	May.	June 1 to 15.
Rainfall in inches.	2.40	3.06	2.28	1.83	2.40	1.54
Run-off in inches.	0.59	1.24	0.99	0.27	0.15	0.05

TABLE 5.—*Rainfall of months preceding period of observation from July to December, 1900.*

1900.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Rainfall in inches.	0.35	0.78	0.79	3.24	2.14	5.53

TABLE 6.—*Monthly percentage of river flow to rainfall.*

1901.	Rainfall.	Run-off.	
		Actual depth.	Per cent of rainfall.
	Inches.	*Inches.*	
January	2.40	0.59	24.6
February	3.06	1.24	40.6
March	2.28	0.99	43.4
April	1.83	0.27	14.7
May	2.40	0.15	6.2
June 1 to 15	1.54	0.05	3.2

The percentage of run-off to rainfall is found by dividing the figures of column 3 by those of column 2 for each month.

[1] From "Results of Stream Measurements," by F. H. Newell.

Taking from table 3 the mean daily discharge for May as 16 second-feet we have, $16\times61.5=984$ total for month of May, as given in column 5 of Table 3.

The depth of run-off over the whole basin is also given for each month in inches for convenience of comparison with rainfall, and also in second-feet per square mile drained. The former is obtained by multiplying the acre-feet per month by 12, to obtain acre-inches, and dividing this by 640, the number of acres in a square mile, and this by the area of the drainage basin, which is 120 square miles. The run-off in second-feet per square mile is simply the mean monthly discharge divided by the total area of the basin from all of which the water is assumed to come.

TABLE 1.—*Climatological data for November, 1909. District No. 12, Columbia Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of part'ly cloudy days.	Number of cloudy days.		
Montana.																				
Anaconda	Deer Lodge	5,300	8	34.2	.....	65	3	− 5	15	34	1.41	.....	0.55	.....	8	10	6	14	.....	C. D. Demond.
Bison Mountain	Powell	7,240	....	.....	.....	.....	.....	.....	.....	.....	2.60	.....	0.58	21.7	11	13	7	10	.....	C. H. Anderson.
Columbia Falls	Flathead	3,100	13	34.6[d]	+ 2.0	55[d]	4†	2[d]	13	25[d]	3.27	+ 0.84	1.03	4.0	7	1	3	26	sw.	Mrs. I. M. Kennedy.
Como‡	Ravalli	.....	2	35.3	.....	63	3	2	14	25	3.76	.....	1.22	2.0	16	3	10	17	.....	Hiram Platt.
Darby	....do	3,825	....	.....	.....	.....	.....	.....	.....	.....	4.54	.....	.....	.....	.....	6	20	4	sw.	W. A. Kerlee.
Dayton	Flathead	2,800	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Charles M. Lawson.
East Anaconda‡	Deer Lodge	5,500	4	32.8	.....	61	3	− 1	14	31	1.49	.....	0.70	6.0	7	10	6	14	w.	C. D. Demond.
Fortine	Flathead	2,975	4	34.6	.....	57	3	− 2	14†	29	2.47	.....	0.41	2.5	20	3	6	21	e.	Mike Petery.
Hamilton	Ravalli	3,575	7	4.06	.....	70	3†	3	15	39	1.86	.....	0.85	.....	8	5	13	12	s.	J. B. Currie.
Hat Creek	Powell	6,000	....	.....	.....	.....	.....	.....	.....	.....	4.16	.....	0.90	10.3	....	12	7	11	w.	M. K. Landreth.
Jocko	Missoula	3,100	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George W. Robbins.
Kalispell	Flathead	2,965	11	35.5	+ 3.5	58	3	6	14	21	2.99	+ 1.09	0.45	4.1	16	1	8	21	sw.	U. S. Weather Bureau.
Lost Creek	Deer Lodge	5,200	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Frank Henault.
Missoula	Missoula	3,225	26	36.8	+ 4.6	67	3	5	15	27	1.39	+ 0.21	0.30	0.7	15	.....	.....	.....	sw.	U. S. Weather Bureau.
Ophir	Powell	8,800	....	.....	.....	.....	.....	.....	.....	.....	1.29	.....	0.30	10.0	9	8	7	15	w.	E. S. Wilton.
Ovando	....do	4,207	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	S. B. Muchmore.
Philipsburg	Granite	5,275	6	34.9	.....	65	3	− 4	15	37	1.33	.....	0.48	6.3	10	13	4	13	w.	Prof. G. T. Bramble.
Pipestone Pass	Jefferson	7,000	....	.....	.....	.....	.....	.....	.....	.....	1.07	.....	0.35	20.5	8	10	13	7	nw.	Mrs. Th. Kiermeyer.
Plains	Sanders	2,475	11	35.8	+ 3.7	53	2	5	14†	25	2.87	+ 1.54	0.60	.....	10	4	2	24	sw.	M. H. Pierce.
Pleasant Valley	Flathead	3,500	3	34.0	.....	56	8	−11	14	38	5.27	.....	0.72	4.2	17	.....	.....	.....	.....	A. D. Stillman.
Polson	....do	2,920	2	36.9	.....	56	30	9	14†	31	2.24	.....	0.50	1.5	9	.....	.....	.....	.....	F. P. Brown.
St. Ignatius	Missoula	2,700	1	37.6	.....	61	29	0	15	29	1.25	.....	0.25	2.0	14	4	3	23	.....	U. S. Reclamation Service
St. Regis	....do	2,650	2	36.5	.....	55	4	5	15	28	5.34	.....	1.07	3.6	17	4	12	14	ne.	R. D. Lee.
Saltese	....do	3,600	5	.....	.....	.....	.....	.....	.....	.....	12.50	.....	2.00	3.0	17	6	0	24	w.	E. K. Tarbox.
Snowshoe	Flathead	4,500	3	30.4	.....	47	3†	− 1	14	24	27.92	.....	3.81	32.7	25	2	1	27	w.	J. S. Riter.
Troy	....do	1,880	15	39.5	+ 3.8	65	6	5	15	30	8.39	+ 4.07	1.10	13.5	19	5	4	21	.....	W. E. Milnor.
Upper Lake McDonald	....do	3,200	3	30.0[f]	.....	49[f]	8	0[f]	14	32[f]	.....	.....	.....	.....	.....	1[f]	5[f]	18[f]	s.	F. F. Liebig.
Woodville	Jefferson	6,376	....	.....	.....	.....	.....	.....	.....	.....	1.78	.....	0.67	13.3	10	11	8	11	sw.	Anna Kinman.
Wyoming.																				
Afton	Uinta	6,200	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. V. Call.
Alta	....do	.....	....	.....	.....	.....	.....	.....	.....	.....	2.75	.....	0.75	9.4	14	9	3	18	sw.	Mrs. Lucy Brown.
Bedford	....do	5,900	10	31.4	− 0.2	64	3†	−11	28	42	2.68	+ 1.58	0.63	14.1	10	11	2	17	w.	C. G. Heiner.
Snake River	Yellowstone Park	7,000	3	28.4	.....	55	3†	− 9	12	42	5.00	.....	1.00	33.0	10	8	4	18	w.	U. S. Army.
Nevada.																				
San Jacinto	Elko	.....	5	34.4	.....	62	3	4	16	42	1.55	.....	0.69	.....	4	11	5	14	sw.	Moses Jones.
Idaho.																				
Albion	Cassia	.....	9	39.6	.....	71	3	8	16	43	3.11	.....	1.12	4.0	11	8	2	20	w.	G. A. Asline.
Almo	....do	.....	....	.....	.....	.....	.....	.....	.....	.....	2.78	.....	0.86	3.0	10	10	9	11	nw.	Wm. L. Eames.
Bear Valley	Boise	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Francis Wallis.
Blackfoot	Bingham	4,503	13	36.8	+ 2.6	66	3†	10	16	40	3.00	+ 3.21	0.67	.....	12	9	6	15	sw.	E. A. Dowd.
Blanche	Lincoln	.....	....	43.6[g]	.....	76[g]	3	18[g]	16	46[g]	.....	.....	.....	.....	.....	.....	.....	.....	.....	Solon A. Bray.
Bogus Creek	Boise	4,200	....	.....	.....	.....	.....	.....	.....	.....	7.16	.....	1.58	18.5	16	5	12	13	.....	F. P. Ingraham.
Boise	Ada	2,770	24	44.0	+ 4.4	69	4	21	15	27	3.41	+ 2.55	0.80	2.0	16	4	8	18	nw.	U. S. Weather Bureau.
Bonanza	Custer	6,600	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. Emma Walter.
Bonners Ferry	Bonner	1,850	3	35.7	.....	56	2s†	9	14†	32	5.38	.....	1.03	5.5	18	0	6	24	sw.	W. H. Heideman.
Boulder Mine	Boise	4,800	....	.....	.....	.....	.....	.....	.....	.....	9.87	.....	2.03	17.3	15	9	7	14	.....	Patrick Moriarty.
Buhl	Lincoln	3,800	4	42.3[a]	.....	70[a]	1†	21[a]	14†	34[a]	2.72	.....	0.60	4.0	15	.....	.....	.....	.....	Dr. D. P. Albee.
Burke	Shoshone	4,082	3	32.3	.....	47	3†	2	15	25	13.56	.....	2.37	19.5	21	2	5	23	ne.	W. A. Hall.
Caldwell	Canyon	2,372	5	42.4	.....	72	2	16	15†	31	1.73	.....	0.50	1.0	14	4	13	13	e.	W. J. Boone.
Camas	Fremont	4,815	....	31.4	.....	63	3†	3	15	51	1.89	.....	1.20	2.0	3	.....	.....	.....	sw.	Ednah Faulkner.
Cambridge	Washington	2,651	14	39.3	+ 4.5	65	4	15	15†	32	2.25	− 0.05	0.82	0.5	12	.....	.....	.....	nw.	C. H. Shepherd.
Chesterfield	Bannock	5,424	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. L. West.
Clawson	Fremont	.....	....	.....	.....	.....	.....	.....	.....	.....	3.03	.....	1.64	14.0	6	13	3	14	.....	E. J. Hopkins.
Cœur d'Alene	Kootenai	2,157	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jas. T. Scott.
Culdesac	Nez Perce	1,520	....	40.8	.....	68	3	13	15	33	5.44	.....	0.88	.....	11	8	7	15	.....	R. R. Richmond.
Dent	....do	1,350	4	38.0	.....	59	4	17	15	20	6.92	.....	1.04	0.0	22	2	14	14	.....	Emil Schuessler.
Driggs	Fremont	6,097	3	29.8	.....	54	8	− 6	28	32	2.31	.....	0.70	14.0	9	7	5	18	.....	Walter H. Durrant.
Edie	....do	.....	....	29.4	.....	54	5†	− 2	15	32	1.24	.....	0.33	10.0	5	13	6	11	s.	Geo. B. Edie.
Emmett	Canyon	2,350	3	42.6	.....	71	1	18	15	30	2.53	.....	0.41	0.0	14	12	5	13	s.	E. L. Marvin.
Forney	Lemhi	.....	13	32.9	+ 2.0	71	3	2	16†	42	2.28	+ 0.36	0.43	12.0	7	15	7	8	sw.	E. P. Treloar.
Garnet	Elmore	2,575	10	44.4	+ 0.6	64	2	20	16	28	1.22	+ 0.51	0.30	T.	8	12	2	16	e.	Mrs. Inez H. Davis.
Gilbert‡	Nez Perce	3,030	....	39.4	.....	60	3†	12	14†	22	.....	.....	.....	3.0	....	2	8	20	sw.	J. B. Loomis.
Glenns Ferry	Elmore	2,569	2	42.9	.....	73	3	18	16	45	4.32	.....	0.95	1.5	15	12	1	17	sw.	I. E. Perkins.
Grand Forks	Shoshone	3,000	....	34.3	.....	52	24	1	16	32	20.90	.....	2.98	13.3	23	4	7	19	e.	H. F. Kottkey.
Grandview	Owyhee	.....	....	44.8	.....	70	3†	20	7	44	1.02	.....	0.30	0.0	9	.....	.....	.....	.....	N. G. Massey.
Guffey	....do	2,381	....	46.0	.....	74	2	14	16	35	1.38	.....	0.25	T.	13	18	0	12	w.	F. N. Perry.
Hailey	Blaine	5,347	7	33.8	.....	61	3	7	16	40	2.68	.....	0.61	4.0	11	8	10	12	se.	U. S. Forest Service.
Henry	Bannock	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. W. Irsfeld.
Hotspring	Owyhee	2,752	4	46.0	.....	72	2†	18	16	44	1.94	.....	0.45	0.0	11	9	7	14	.....	J. M. Waterhouse.
Idaho City	Boise	4,000	11	.....	.....	.....	.....	.....	.....	.....	8.49	.....	1.85	12.5	12	.....	.....	.....	.....	Mrs. Emma Hammer.
Idaho Falls	Bingham	4,742	14	35.9	+ 4.3	66	4	15	16	39	1.26	+ 0.17	0.48	1.5	8	11	3	16	ne.	Dr. T. M. Bridges.
Indian Valley	Washington	2,999	....	.....	.....	.....	.....	.....	.....	.....	2.88	.....	0.85	0.0	12	4	10	16	s.	W. E. Henke.
Irwin	Bingham	6,500	....	35.7	.....	67[a]	4	− 2	28	41	2.99	.....	0.57	.....	10	8	9	13	.....	Miss Martha A. Beam.
Kellogg	Shoshone	2,330	5	38.0	.....	58[b]	22†	9[b]	15	24[d]	7.88	.....	1.17	1.5	21	2	2	26	sw.	W. McM. Huff.
Kooskia	Idaho	1,261	....	39.2	.....	66	4	15	16	22	5.21	+ 0.41	0.68	0.1	19	7	5	18	sw.	U. S. Forest Service.
Lake	Fremont	6,700	17	30.7	+ 0.5	64	4†	0	12†	36	1.70	+ 3.15	0.40	17.0	5	.....	.....	.....	sw.	J. Sherwood.
Lakeview	Bonner	2,250	12	37.6	+ 0.3	55	2†	7	14	25	7.75	.....	1.20	6.0	18	2	2	26	sw.	E. D. Faust.
Landore	Washington	5,300	6	32.4	.....	56	3†	6	15	27	6.37	+ 2.17	1.24	20.5	16	8	8	14	.....	Mrs. Emma L. Brown.
Lardo	Boise	5,050	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. W. York.
Lewiston	Nez Perce	757	15	44.2	+ 3.3	67	22	21	15	27	3.49	.....	0.78	0.0	19	1	7	22	e.	U. S. Weather Bureau.
Little Camas	Elmore	5,000	....	.....	.....	.....	.....	.....	.....	.....	8.19	.....	1.69	13.3	15	4	12	14	w.	Solon McCoy.
Lost River	Blaine	5,700	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. B. Harger.
Lowry	Owyhee	.....	2	42.3	.....	81	1†	9	16	60	3.64	.....	1.18	4.0	10	6	12	12	se.	W. D. Winter.
Mackay	Custer	5,897	2	31.6	.....	59	2†	6	15†	34	0.48	.....	0.20	0.8	4	18	1	11	nw.	U. S. Forest Service.
Meadows	Washington	3,950	7	35.6	.....	62	3	3	15	30	7.08	.....	1.14	8.5	17	2	13	15	.....	Chas. A. Hackney.
Milner	Twin Falls	4,097	6	39.0	.....	68	2	15	16	37	3.89	.....	1.33	0.5	11	10	10	10	.....	R. A. Hanson.
Moscow	Latah	2,748	17	41.6	+ 3.8	62	22	11	14	36	5.77	+ 2.46	0.85	2.0	19	3	6	21	e.	University of Idaho.
Mountainhome	Elmore	3,150	4	41.2	.....	71	3	12	15	42	3.61	.....	0.98	4.0	12	9	5	16	ne.	Mrs. Ellen Marion.
Murtaugh	Twin Falls	.....	3	38.6	.....	69	3	13	16	43	2.81	.....	0.84	2.0	9	.....	.....	.....	w.	J. E. Steinour.
Nez Perce‡	Nez Perce	3,182	....	37.6	.....	58	2†	3	15	30	.....	.....	.....	0.5	.....	.....	.....	.....	.....	P. W. Mitchell.
Oakley	Casia	4,191	17	40.2	+ 1.4	72	3	20	14†	42	2.35	+ 1.55	0.55	1.0	9	8	10	12	s.	John Adams.
Orofino	Nez Perce	1,027	5	40.6	.....	65	4	15	15	28	8.02	.....	1.00	0.0	22	4	10	16	.....	Geo. Alteneder.
Payette	Canyon	2,159	16	42.2	+ 1.5	69	2	15	16	32	1.53	+ 0.41	0.57	2.5	11	4	9	11	n.	E. F. Allen.
Pebble	Bannock	5,277	....	33.8	.....	64[a]	3	1	28	41[a]	7.10	.....	1.98	12.4	13	11	5	14	s.	Arthur P. Say.
Pierson	Custer	7,000	....	.....	.....	.....	.....	.....	.....	.....	4.82	.....	1.28	.....	6	7	0	23	s.	David P. Clarke.
Pleasant Valley	Ada	3,000	2	42.0	.....	70	2	12	15	34	2.89	.....	0.49	3.0	14	12	2	16	se.	C. E. Friedrich.
Pocatello	Bannock	4,483	11	39.4	+ 3.1	68	4	16	17	30	2.80	+ 2.25	0.66	1.4	13	6	8	16	se.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for November, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of part'ly cloudy days.	Number of cloudy days.		
Idaho—Cont'd.																				
Pocatello Nursery	Bannock	5,396	3	33.3	.....	67	3	0	29	46	4.65	.....	1.10	2.0	9	6	3	21	sw.	Peter F. Wrensted.
Poplar	Bingham			34.3	.....	66	5	3	28	40	2.48	.....	0.51	7.7	10	7	9	14	sw.	Stuart Lee.
Poplars‖	Canyon	2,425	10																	N. S. Dils.
Porthill	Bonner	1,665	17	33.8	+ 0.5	47	2	11	14†	21	4.73	+ 1.42	0.80	10.0	16	5	5	20	sw.	H. A. French.
Pyle Creek	Boise	3,100									9.63	.....	2.26	6.9	14	4	6	20	.....	Walter L. Cole.
Rupert	Lincoln	4,204	3	39.1	.....	70	3	11	16	41	3.83	.....	1.56	1.5	16	9	1	20	w.	Will Parry.
St. Maries	Kootenai	2,263	13																	J. S. Turnbull.
Salem	Fremont	5,000	5								2.34	.....	0.72	.....	11	.....	.....	.....	nw.	Geo. H. A. Harris.
Salmon	Lemhi	4,040	4	36.2	.....	72	3	3	15	44	1.48	.....	0.52	6.8	11	13	7	10	w.	E. K. Abbott.
Salmon River Dam	Twin Falls		2	39.9	.....	71	3	14	14	35	1.80	.....	0.59	4.2	13	7	6	17	s.	Arch M. Gilbert.
Sheep Hill	Boise	5,000									9.02	.....	2.96	12.0	11	.....	.....	.....	.....	Clifford M. Gardner.
Shoshone	Owyhee	6,200	3	38.7	.....	65	3	14	16	33	4.62	.....	1.19	4.5	11	9	13	8	w.	O. A. Petitt.
Silver City	Lincoln	3,968									4.72	.....	1.04	17.4	14	.....	.....	.....	.....	A. O. Treeman.
Soldier	Blaine	5,140	13	31.5	0.0	55	1	− 1	16	40	5.71	+ 3.71	1.00	16.5	13	11	11	8	.....	W. W. Leek.
Standrod	Cassia		5	36.4	.....	63	3†	11	27	29	2.61	.....	0.75	10.1	13	10	3	17	sw.	T. B. Jones.
Sugar	Fremont		2	33.6	.....	63	3	9	28	37	2.39	.....	0.98	6.5	8	5	11	14	sw.	Geo. F. Webb.
Sunnyside	Elmore			40.4	.....	71	3	10	16	38	3.93	.....	1.03	2.0	13	.....	.....	.....	se.	E. A. Wilmot.
Tilden	Bingham	4,420		36.7	.....	68	3†	6	16	48	3.14	.....	0.83	10.5	10	10	5	15	.....	Mrs. W. A. Edwards.
Twin Falls	Twin Falls	3,825	4	40.8	.....	72	3	15	16	43	3.95	.....	1.19	T.	12	3	18	9	w.	Clyde C. Anderson.
Vernon	Fremont		12	33.9	0.0	61	3†	5	28	32	3.41	+ 2.24	0.73	12.0	11	7	5	18	sw.	A. M. Slatery.
Wallace	Shoshone	2,728	2	37.2	.....	54	23	9	15	23	15.77	.....	2.29	.....	25	.....	.....	.....	e.	U. S. Weather Bureau.
Warfield	Blaine	6,386																	.....	Wm. H. Warfield.
Wendell	Lincoln	3,400	....	42.0	.....	72	3	16	16	43	4.94	.....	1.45	1.5	11	12	1	17	.....	Chas. L. Dingler.
Washington.																				
Aberdeen	Chehalis	162	18	44.7	− 0.9	58	2	24	15†	21	26.76	+11.71	3.23	0.0	25	0	22	8	w.	C. Weatherwax.
Anacortes	Skagit	60	15	45.2	.....	63	5†	23	15	21	8.43	+ 3.82	1.51	T.	22	3	20	7	.....	Douglass Allmond.
Baker	....do	200	3	41.9	.....	55	5†	23	15	23	19.10	.....	2.96	0.0	22	6	0	24	.....	Robt. M. White.
Bellingham	Whatcom	60	14	47.0	+ 2.1	73	18	24	15	28	7.61	+ 2.80	1.25	0.0	20	8	11	11	.....	Sanford B. Mayhew.
Blaine	....do	53	12	43.0	+ 2.4	57	18	20	15	21	10.88	+ 4.03	2.60	0.0	22	4	4	22	se.	G. A. Ruring.
Bremerton	Kitsap										13.64	.....		0.0	20	.....	.....	.....	.....	U. S. Navy Yard.
Cedar River	King		2								16.75	.....	2.00	T.	24	3	4	23	.....	Geo. Landsburg.
Centralia	Lewis	212	16	44.6	− 0.4	60	2†	19	15†	28	14.86	+ 5.75	2.20	0.0	26	3	6	21	s.	I. S. Turner.
Cheney	Spokane	2,351	10	38.6	.....	74	24	8	15	51	2.59	− 0.09	0.41	0.0	10	0	15	15	sw.	G. A. Fellows.
Chopaka	Okanogan	1,200	1	36.3	.....	55	30	12	15	30	1.73	.....	0.46	0.7	18	4	6	20	sw.	Mrs. J. S. Myers.
Clealum	Kittitas	1,930	10	34.6	− 2.7	50	3	10	15	23	8.62	+ 3.85	1.70	10.0	21	7	3	20	nw.	J. A. Balmer.
Clearbrook	Whatcom	140	6	41.4	.....	57	18	17	15	21	14.89	.....	2.42	0.0	20	3	4	23	ne.	Geo. Gil's.
Clearwater	Jefferson	135	13	42.4	− 2.3	54	1†	26	14†	14	25.87	+ 5.24	4.65	.....	24	7	9	14	.....	Alfred Ritchie.
Colfax	Whitman	2,300	20	40.8	+ 1.9	64	22	12	15	30	3.79	+ 0.38	0.87	0.0	18	.....	.....	.....	.....	W. H. James.
Colville	Stevens	1,635	9	36.6	+ 3.6	60	3	10	15	24	3.19	+ 0.96	0.76	3.5	12	8	4	18	sw.	W. L. Sax.
Conconully	Okanogan	2,300	9	34.4	+ 0.1	55	3†	10	14	25	3.20	+ 1.16	0.74	6.8	11	9	7	14	.....	Wm. Baines.
Coupeville	Island	150	13																	W. T. Howard.
Crescent	Lincoln	2,250	9	36.8	+ 0.5	55	3†	11	13	28	3.22	+ 0.68	0.45	4.0	12	6	10	14	sw.	Otto Wollweber.
Davenport	....do	2,450	....	37.4	.....	55	23	11	15	22	2.54	.....	0.51	T.	14	8	4	18	se.	W. H. Reed.
Dayton	Columbia	1,700	23	43.5	+ 3.6	66	8	11	15	28	5.20	+ 2.56	0.97	1.0	18	1	9	20	.....	W. W. Hendron.
Detroit	Mason	31	1	45.2	.....	57	2†	24	15	21	21.80	.....	3.44	0.0	24	4	2	24	s.	Walter O. Eckert.
Dixie	Walla Walla	5,000	....								14.03	.....	2.00	20.0	20	2	1	27	s.	T. Z. Andrews.
Duckabush	Jefferson	380	1	39.8[d]	.....	55[d]	3	21[d]	15	20[d]	33.86	.....		1.0	21	2	7	21	sw.	Emery J. Finch.
East Sound	San Juan	500	14																.....	Benj. E. Harrison.
Ellensburg	Kittitas	1,571	21	34.9	− 1.3	56	29	10	15	23	2.71	+ 1.00	0.71	1.0	14	5	9	16	.....	R. Lee Barnes.
Ephrata	Grant	1,265	6																.....	D. Chaffee.
Forks	Clallam	480																	.....	C. W. Palmer.
Fort Simcoe	Yakima	1,427	15	40.4	0.0	63	2	15	15	28	5.71	+ 3.35	2.00	2.0	13	1	13	16	.....	Dr. G. A. Landes.
Goat Lake	Snohomish	2,900	....								40.59	.....	5.42	36.0	24	.....	.....	.....	.....	C. M. Mackintosh.
Gold Creek	Yakima	2,600	....								3.96	.....		3.0	16	4	5	21	w.	John W. Anderson.
Goldendale	Klickitat	1,600	3	40.0	.....	58	22	14	15	22	5.03	.....	1.00	.....	19	4	6	20	w.	Klickitat Abstract Co.
Granite Falls	Snohomish	397	6								8.74	+ 0.73	1.43	0.0	24	3	7	20	sw.	C. H. Cleaver.
Hatton	Adams	1,100	4	41.5	.....	68	3	13	15†	26	2.15	.....	0.46	T.	12	5	2	23	s.	Dr. A. V. Marion.
Huntsville	Columbia	1,400	1								3.96	.....	0.64	3.0	17	7	5	18	sw.	Dr. B. Hill.
Irene Mount	Okanogan	3,015	....								0.90	.....	0.20	4.5	13	6	8	16	n.	Mrs. E. W. Wheeler.
Kennewick	Benton	367	14	46.0	+ 4.3	67	3	14	16	27	2.01	+ 1.04	0.62	T.	11	.....	.....	.....	.....	L. W. Soth.
Kettle Falls	Stevens	1,265	....	38.4	.....	58	3	13	15	25	3.67	.....	0.57	.....	14	8	11	11	.....	Dr. A. E. Baldwin.
Kiona	Benton	430	4	44.4	.....	66	29	12	16	27	1.72	.....	0.63	T.	9	5	5	20	sw.	Dr. F. S. Hedger.
Kosmos	Lewis	775	3	41.2	.....	59	29	18	15	23	17.80	.....	2.33	T.	27	2	10	18	ne.	Hon. J. A. Ulsh.
La Center	Clarke	250	12	43.9	+ 0.7	59	22	19	15	30	14.00	+ 4.14	1.70	0.0	24	2	6	22	sw.	Joseph Brothers.
La Crosse	Whitman	1,400	....	42.2	.....	62	22	8	15	27	4.36	.....	0.63	2.0	18	7	3	20	sw.	M. E. Schreck.
Lake Clealum	Kittitas	2,171	....								12.42	.....	2.03	15.5	24	0	3	27	nw.	U. S. Reclamation Service
Lake Kachess	....do	2,235	....	35.2	.....	51	22†	11	16	20	19.99	.....	3.09	21.0	21	4	4	22	e.	Do.
Lake Keechelus	....do	2,479	1								21.17	.....	3.90	16.0	19	2	2	26	.....	Do.
Lakeside	Chelan	1,116	18	38.6	+ 0.8	58	3	19	15	21	3.64	+ 1.67	1.00	5.0	18	3	13	14	e.	W. H. Van Meter.
Laurel	Klickitat	1,900	....								13.73	.....	2.01	6.8	22	5	16	9	w.	L. S. Strout.
Lester	King	1,614	5	39.2	.....	56	22†	20	16	23	14.50	.....	3.50	5.0	20	3	3	24	e.	W. W. Clabaugh.
Lone Tree	Chealis	9	....	46.6	.....	56	23	32	15	21	22.44	.....	4.02	0.0	26	4	5	21	sw.	U. S. A. Engineers Corps.
Longmire Spring	Pierce	2,800	....								12.02	.....	1.10	21.1	27	1	0	29	w.	U. S. Forest Service.
Lost Creek	Okanogan	3,125	....								2.32	.....	0.50	1.0	11	7	4	19	sw.	P. H. Leese.
Lucerne	Chelan	1,100	2																.....	Barbara Schearer.
Lyle (Pine Hill)	Klickitat	600	16	35.8	− 5.9	57	23	10	14	26	11.59	+ 6.86	2.15	4.6	21	3	0	27	w.	Thomas J. Whitcomb.
McCumber's Ranch	Yakima	2,182	....																	Mrs. Mary McCumber.
Mottinger	Benton	307	9	44.5	+ 0.7	74	3	13	15†	27	1.48	+ 0.33	0.71	T.	7	9	7	14	w.	G. H. Mottinger.
Mount Pleasant	Skamania	650	9	45.2	− 0.4	61	3†	26	15	21	15.71	+ 7.03	2.35	0.0	27	3	4	23	w.	F. M. Grout.
Moxie	Yakima	1,000	17	40.6	+ 1.6	63	2	10	15	29	1.85	+ 0.59	0.73	.....	16	3	11	16	s.	H. B. Scudder.
North Head	Pacific	211	7	46.6	− 1.1	55	22	33	15	12	13.97	+ 7.64	1.80	0.0	26	3	3	24	se.	U. S. Weather Bureau.
Northport	Stevens	1,950	10	32.6	− 2.8	55	2	7	15	30	2.91	+ 0.41	0.41	8.6	15	7	12	11	.....	A. L. Hager.
North Yakima	Yakima	1,076	....	40.0	.....	62	23	13	15	24	1.76	.....	0.70	0.0	15	4	10	16	nw.	Albert Bender.
Nutland	Klickitat		....	43.2	.....	65	3	13	15	36	3.78	.....	1.56	.....	18	.....	.....	.....	.....	J. R. Shepard.
Odessa	Lincoln	1,540	6	39.7	.....	59	23	11	15	28	2.29	.....	0.60	T.	12	6	5	19	sw.	Wm. U. Neeley.
Olga	San Juan	50	19	44.2	0.0	58	18	28	15†	18	9.45	+ 4.44	1.79	0.0	18	4	10	16	se.	Cecil S. Willis.
Olympia	Thurston	200	31	45.0	+ 0.9	58	22	20	15†	22	19.94	+10.99	3.30	0.0	27	1	4	25	sw.	M. O'Conner.
Omak	Okanogan										1.68	.....	0.60	.....	8	8	7	15	s.	Wm. G. Tait.
Oroville	....do	922	....	39.8	.....	60	23	15	15	29	1.04	.....	0.25	0.1	9	8	4	18	s.	A. M. Dufield.
Peola	Garfield	5,000	....								6.69	.....	1.16	8.1	21	4	9	17	sw.	Samuel Gruell, sr.
Pomeroy	....do	1,500	17																	Peter McClung.
Port Crescent	Challam	259	14	41.6	− 0.7	58	22	23	15	19	15.37	+ 7.92	4.11	T.	23	3	8	19	s.	U. S. Weather Bureau.
Port Townsend	Jefferson	80	19	44.6	− 0.3	57	2	28	15	13	3.90	+ 1.10	0.89	0.0	20	5	1	24	se.	Frank Plummer.
Pullman	Whitman	2,550	17	36.9[c]	− 1.3	55[s]	2†	13[f]	15	17[f]	5.67	+ 2.15	1.16	2.2	18	4	9	17	sw.	State Agricultural Col.
Quiniault	Chehalis	300	2	42.5	.....	57	2	25	15†	20	42.29	.....	6.33	0.1	26	5	9	16	sw.	A. V. Higley.
Republic	Ferry	2,628	9	33.7	+ 0.6	53	23	6	15	24	2.15	+ 0.06	0.34	5.7	16	8	2	20	nw.	Geo. B. Stocking.
Rex Creek	Chelan	1,135	2																	James W. Nicol.

TABLE 1.—*Climatological data for November, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Washington—Cont'd.																				
Ritzville	Adams	1,825	10	.....	.....	.....	.....	.....	.....	.....	2.94	+ 1.61	0.46	.....	17	.....	.....	.....	.....	Agent, No. Pac. Ry.
Rock Lake	Whitman	1,750	3	38.6	.....	58	9†	19	14	21	4.17	.....	0.81	0.2	13	11	6	13	sw.	P. M. Ramsey.
Rosalia	....do.	2,425	17	39.2	+ 1.5	56	22	17	14	22	4.55	+ 1.25	0.80	0.4	20	6	5	19	sw.	Hans Mumm.
Russell's Ranch	Yakima	2,870	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Russell.
Seattle (1)	King	123	18	45.5	+ 1.0	59	28	29	15	16	9.11	+ 3.25	1.59	0.0	22	2	4	24	s.	U. S. Weather Bureau.
Seattle (2)	....do.	.....	.....	44.8	.....	58	22	27	15	16	9.52	.....	1.85	0.0	23	5	5	20	s.	Univ. of Washington.
Sedro-Wooley	Skagit	38	12	42.3	− 1.7	60	18	20	15	20	11.18	+ 3.70	1.51	0.0	26	3	7	20	.....	H. L. Devin.
Sixprong	Klickitat	1,240	2	42.2	.....	66	3	10	15	27	2.46	.....	1.10	0.2	16	6	0	24	sw.	C. E. Comstock.
Skagit Power Dam	Whatcom	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Skagit Power Co.
Snohomish	Snohomish	50	15	43.6	− 0.9	59	22	20	15	23	8.87	+ 2.36	1.60	0.0	24	4	2	24	se.	Irving B. Vestal.
Snoqualmie Falls	King	667	10	43.6	− 1.5	60	29	25	15†	21	17.08	+ 8.16	2.40	0.0	26	8	0	22	.....	O. N. Wiswell.
Snyder's Ranch	Okanogan	2,200	.....	.....	.....	.....	.....	.....	.....	.....	7.74	.....	1.50	40.5	16	9	9	12	n.	George M. Snyder.
South Bend	Pacific	16	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John L. Stevens.
Spokane	Spokane	1,943	28	40.0	+ 2.7	58	3	16	15	22	2.69	+ 0.39	0.54	0.6	16	4	3	23	s.	U. S. Weather Bureau.
Stehekin	Chelan	1,100	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. E. Field.
Stokes Ranch	Okanogan	2,670	.....	.....	.....	.....	.....	.....	.....	.....	6.05	.....	1.33	52.5	15	8	8	14	se.	Amos Stokes.
Sullivan Lake	Stevens	2,700	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. Jennie D. McAbee.
Sumner	Pierce	77	1	44.8	.....	63	28†	19	16	26	12.69	.....	1.61	0.0	25	4	4	22	sw.	H. E. Thompson.
Sunnyside	Yakima	740	14	43.0	+ 3.2	76	25	12	15	30	1.44	+ 0.41	0.68	0.0	14	8	5	17	w.	U. S. Reclamation Service
Tacoma	Pierce	213	23	45.2	+ 1.1	60	28	25	15	21	14.73	+ 6.20	2.59	0.0	24	2	2	26	sw.	U. S. Weather Bureau.
Tatoosh Island	Clallam	86	24	45.5	− 0.4	55	3	35	25	15	16.52	+ 4.43	2.90	T.	24	3	5	22	e.	Do.
Tieton	Yakima	2,000	.....	39.9[e]	.....	57	29	22	14†	22	7.08	.....	1.53	1.7	12	3[b]	7[b]	18[b]	.....	U. S. Reclamation Service
Touchet	Walla Walla	556	2	45.2	.....	70	3	13	15	37	1.76	.....	0.58	T.	16	8	7	15	sw.	D. W. Dorrance.
Touchet Ridge	Columbia	2,500	.....	.....	.....	.....	.....	.....	.....	.....	11.67	.....	3.10	14.5	11	2	10	18	sw.	R. H. King.
Trinidad	Douglas	900	5	39.1	.....	62	23†	15	15	27[c]	.....	.....	.....	.....	.....	7	3	13	e.	J. C. Wheeler.
Twisp	Okanogan	1,619	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Wm. G. Hughes.
Tyee	Chelan	2,000	.....	.....	.....	.....	.....	.....	.....	.....	8.23	.....	1.80	39.0	10	4	9	17	w.	Elias McCrea.
Vancouver	Clarke	100	34	45.9	+ 0.8	62	22	21	15	23	12.79	+ 7.45	1.65	0.0	27	2	5	23	se.	A. A. Quarnberg.
Vashon Island	King	110	20	45.1	+ 0.3	57	22†	26	15	16	13.34	+ 6.07	2.01	T.	26	5	2	23	s.	Miss Gertrude McClintock
Wahluke	Grant	410	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. C. Koppen.
Wallace	Okanogan	4,000	.....	.....	.....	.....	.....	.....	.....	.....	4.74	.....	0.85	.....	11	1	15	14	s.	Geo. A. Wallace.
Walla Walla	Walla Walla	1,000	25	45.2	+ 2.3	67	2	16	16	32	3.98	+ 1.85	0.85	3.3	20	3	7	20	s.	U. S. Weather Bureau.
Waterville	Douglas	2,624	19	34.6[a]	+ 1.4	57[a]	23	9[a]	15	24[a]	2.57	+ 0.77	0.65	12.0	13	10	7	13	w.	O. R. Hopewell.
Wenatchee (near)	Chelan	1,169	10	36.6	− 0.5	57	23†	15	15	27	4.07	+ 1.67	0.99	11.7	19	4	7	19	w.	George Pitcher.
West Branch	Spokane	2,600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Martin A. Murray.
Wilbur	Lincoln	2,203	10	37.0	+ 1.7	58	23	9	15	23	2.44	+ 0.55	0.50	1.0	11	7	3	20	s.	Rollin J. Reeves.
Yale	Cowlitz	375	2	43.6	.....	66	23	25	14	26	31.02	.....	4.10	0.0	24	5	5	20	sw.	L. F. Williams.
Zindel	Asotin	715	7	45.2	.....	70	1†	22	14†	34	4.20	.....	1.10	0.0	7	10	7	13	n.	M. W. Zindel.
Oregon.																				
Albany	Linn	214	33	46.6	+ 1.2	62	2	22	11	30	11.86	+ 6.16	2.30	2.2	25	4	6	20	.....	F. M. French.
Ashland	Jackson	1,940	25	45.1	+ 0.2	70	2	25	14†	22	7.42	+ 5.15	1.63	4.0	21	2	4	24	se.	F. H. Carter.
Astoria	Clatsop	11	47	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. W. Lamar.
Baker City	Baker	3,466	20	38.3	+ 1.1	66	3	7	15	26	1.90	+ 0.79	0.86	3.5	19	5	6	19	se.	U. S. Weather Bureau.
Bay City	Tillamook	14	13	48.8	− 0.5	67	18	26	15	32	19.54	+ 3.38	2.65	0.0	26	3	2	25	se.	J. O. Bozarth.
Birch Creek	Wheeler	2,900	.....	41.5	.....	70	3	9	15	26	3.40	.....	0.90	1.5	9	4	14	12	sw.	F. S. Matteson.
Black Butte	Lane	1,200	8	43.9	.....	59	2	26	15	23	13.30	.....	2.35	0.0	22	4	8	18	sw.	James A. Putman.
Blalock	Gilliam	237	10	44.8	.....	68	3	17	14†	25	3.48	.....	1.48	0.0	15	6	3	21	w.	Geo. W. Long.
Buckhorn Farm	Josephine	1,300	10	45.7	− 0.1	68	2	24	16	27	21.60	+11.73	5.43	0.0	16	3	6	21	s.	E. F. Meisser.
Cascade Locks	Hood River	100	18	44.1	− 1.3	62	3†	22	15	22	26.10	+14.77	4.23	0.0	27	3	1	26	w.	Val W. Tomkins.
Cazadero	Clackamas	514	.....	45.8	+ 0.4	63	29	25	16	20	19.72	+ 8.39	2.99	1.0	26	3	2	25	e.	A. Drill.
Condon	Gilliam	2,884	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. H. Williams.
Corvallis	Benton	600	7	44.7	− 1.1	65	23	24	13	27	11.53	+ 4.96	1.88	0.0	20	5	4	21	s.	Oregon Agric. College.
Dayville	Grant	1,500	14	44.0	+ 1.6	77	2	9	15	31	1.08	− 0.13	0.40	1.8	11	5	10	15	sw.	Dr. J. Campbell-Martin
Doraville	Columbia	600	7	42.7	.....	59	22	21	15	19	16.93	.....	2.05	T.	27	2	2	26	se.	Jos. Hackenberg.
Drain	Douglas	300	6	47.9	.....	70	2	25	15	28	12.98	.....	4.03	0.0	24	2	1	27	sw.	Ira Wimberly.
Echo	Umatilla	625	5	43.3	.....	70	3†	2	15	26	2.46	.....	1.00	8.5	10	6	3	21	w.	R. B. Stanfield.
Ella	Morrow	830	10	42.8	.....	69	3	0	15	32	2.88	+ 1.54	0.85	6.0	14	9	4	17	sw.	C. F. Troedson.
Eugene	Lane	449	18	46.9	+ 0.3	67	3	25	15	24	8.51	+ 3.50	1.91	0.0	21	3	6	21	sw.	A. W. Jackson.
Fairview	Coos	142	11	44.4	− 5.3	60	22	30	15	22	22.31	+11.80	5.65	0.0	23	3	1	26	sw.	Wm. Bettys.
Fall City	Polk	355	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. F. Vick.
Forest Grove	Washington	220	19	44.3	− 0.1	62	22	20	15	22	14.53	+ 5.63	2.20	0.0	25	0	8	22	s.	Pacific University.
Gardiner	Douglas	72	19	46.8	− 3.1	66	22	30	14†	16	19.04	+ 8.66	2.83	0.0	26	1	8	21	.....	Hon. J. S. Gray.
Glendale	....do.	1,441	5	46.1	.....	68	3	29	16	26	7.80	.....	1.40	0.0	11	6	8	16	sw.	B. J. Simpson.
Glenora	Tillamook	575	17	42.2	− 1.5	57	17†	20	15	24	57.00	+32.17	6.80	1.5	23	4	2	24	sw.	Mrs. Jennie Recher.
Gold Beach	Curry	40	6	50.4	.....	65	2	29	15	25	25.46	.....	5.04	0.0	24	7	0	23	s.	C. Dewey.
Granite	Grant	4,680	4	34.6	.....	65	3	− 8	15	48	3.93	.....	1.10	10.0	12	0	10	20	se.	L. M. Ford.
Grants Pass	Josephine	956	20	46.3	+ 1.7	70	2	22	15†	28	9.19	+ 4.84	1.81	0.0	22	3	8	19	sw.	John B. Paddock.
Grass Valley	Sherman	2,381	7	43.0	.....	65	3	21	17	32	3.34	.....	1.18	2.0	13	3	10	17	sw.	Agent. O. Ry. & N. Co.
Greenleaf	Lane	250	9	44.6	.....	60	3†	25	15†	24	29.17	.....	6.82	0.0	26	4	0	26	sw.	Wm. Wheeler.
Headworks	Clackamas	719	10	43.0	.....	59	3	24	15	17	21.60	+11.02	2.40	0.5	27	3	4	23	ne.	Portland Water Works.
Heppner	Morrow	1,950	20	46.0	+ 2.4	78	3	5	13	40	1.91	+ 0.61	0.54	5.1	10	12	2	13	w.	Geo. Whiteis.
Hermiston	Umatilla	450	4	42.2	.....	69	29	6	15†	31	2.95	.....	0.64	3.0	16	7	12	11	.....	C. W. Kellogg.
Hood River	Hood River	243	18	41.2	− 1.0	65	22	15	15	27	11.75	+ 6.09	2.00	1.5	23	6	4	20	w.	H. L. Hasbrouck.
Huntington	Baker	2,110	7	41.2	.....	64	7	21	29	27	1.92	.....	0.50	0.2	6	3	10	17	.....	J. M. Day.
Jacksonville	Jackson	1,640	20	43.3	− 0.7	67	2	23	15	23	9.69	+ 6.18	2.12	T.	19	2	4	24	.....	E. Britt.
La Grande	Union	2,784	21	40.4	− 0.4	68	3	4	15	29	4.24	+ 2.21	1.03	5.0	15	4	6	20	w.	W. A. Worstell.
McKenzie Bridge	Lane	1,400	7	41.2	.....	66	4	16	15	33	21.14	.....	5.40	0.0	25	1	1	28	sw.	Geo. Frissell.
McMinnville	Yamhill	180	21	45.4	+ 0.3	62	22	24	16	19	14.38	+ 6.19	2.42	0.0	24	3	8	19	sw.	C. J. McKee.
Madras	Crook	2,150	.....	39.2	.....	71	4	− 4	14	40	2.17	.....	0.60	0.5	8	0	0	30	sw.	D. P. Rea.
Marshfield	Coos	12	7	49.4	.....	66	2	29	15	29	.....	.....	.....	.....	26	.....	.....	.....	sw.	Dr. E. Mingus.
Mikkalo	Gilliam	1,600	5	41.5	.....	63	2	7	31	28	3.40	.....	1.07	3.0	15	9	4	17	w.	J. T. Chandler.
Miramonte Farm	Clackamas	195	19	45.4	+ 1.9	62	22	23	15	20	12.85	+ 5.27	1.84	0.0	24	3	7	20	s.	G. M. Muecke.
Monroe	Benton	350	12	46.2	− 0.3	65	3	25	15	22	15.45	+ 6.37	2.70	0.0	25	3	1	26	sw.	John H. Starr.
Mount Angel	Marion	485	23	46.3[d]	+ 0.9	64	3	25[c]	15	17[c]	16.54	+ 9.61	2.00	0.0	27	4	6	20	sw.	Dr. U. F. Fisher.
Mountain Park	Hood River	1,550	4	39.1	.....	60	3	12	16	22	22.83	.....	3.26	7.7	25	3	1	26	w.	Raymond Markley
Newport	Lincoln	69	19	47.4	− 1.7	59	29	29	14	25	18.01	+ 6.88	2.68	0.0	27	3	6	21	sw.	Wm. Matthews.
Pendleton	Umatilla	1,272	19	44.2	+ 1.2	70	3	− 1	16	32	3.58	+ 2.13	0.68	5.0	18	1	18	11	sw.	H. F. Johnson.
Pilot Rock	....do.	1,872	.....	44.4	.....	69	3	7	15	33	2.27	.....	0.57	4.0	20	4	20	6	sw.	John P. McManus.
Pompeii	Clackamas	3,580	14	34.6	− 2.4	52	3	12	15	30	24.75	+11.47	5.44	34.0	26	3	3	24	sw.	O. C. Yocum.
Portland	Multnomah	57	40	47.2	+ 1.1	63	22	28	15	19	12.49	+ 5.88	2.33	0.0	24	2	6	22	s.	U. S. Weather Bureau
Port Orford	Curry	300	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Willis T. White.
Prineville	Crook	3,000	12	40.7[b]	− 1.1	65[c]	3	5	15	35[c]	2.25	+ 1.29	0.85	T.	6	7[f]	0[f]	17[f]	.....	C. I. Winnek.
Prospect	Jackson	2,750	4	40.3	.....	69	3	15	15	36	19.33	.....	3.50	8.5	24	3	6	21	s.	E. F. Graham.
Range	Grant	.....	4	32.0	.....	67	3	0	14	37	5.55	.....	1.40	13.0	8	2	4	24	.....	Craig Thom.
Riverside	Malheur	3,000	12	37.4[c]	+ 1.1	65[c]	3†	9	16	39[i]	2.18	+ 1.46	0.35	1.5	11	7	8	15	sw.	Mrs. Leah Fairman.
Roseburg	Douglas	523	32	47.5	+ 1.1	71	2	27	16	23	8.70	+ 4.37	3.13	0.0	24	1	5	24	s.	U. S. Weather Bureau.
Salem	Marion	120	18	46.6	− 0.4	61	2	26	15	14	10.56	+ 3.98	1.64	0.0	27	3	1	26	s.	M. P. Baldwin.

TABLE 1.—*Climatological data for November, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Oregon—Cont'd.																				
Siskiyou	Jackson	4,115	1	38.2	.....	63	3	17	14	22	9.56	.....	1.46	12.3	24	5	8	17	sw.	Louise F. Bates.
Stafford	Clackamas	400	13	46.2	+ 1.0	64	7	23	15	30	15.95	+ 6.40	2.46	0.0	26	.....	.....	.....	s.	J. P. Gage.
The Dalles	Wasco	112	34	43.0	+ 0.8	66	23	17	15	25	4.55	+ 2.42	1.81	T.	19	8	0	22	w.	S. L. Brooks.
Toledo	Lincoln	50	19	47.1	− 1.2	62	4†	27	16	27	22.51	+10.66	2.25	0.0	25	5	7	18	s.	C. B. Crosno.
Umatilla	Umatilla	340	19	44.0	+ 0.9	69	3	10	15	27	1.77	+ 0.63	0.44	T.	9	8	3	19	w.	Mrs. H. T. Duncan.
Vale	Malheur	2,450	17	40.8	+ 3.9	70	2	10	16	39	1.21	+ 0.24	0.62	0.0	8	12	14	4	ne.	H. P. Osburn.
Wallace Orchard	Polk	170	...	46.0	.....	61	2†	23	15	22	12.31	.....	1.91	0.0	27	1	2	27	.....	Chas. A. Park.
Wallowa	Wallowa	2,935	6	38.3	.....	69	3	12	16	27	5.62	.....	0.94	5.0	18	2	1	27	sw.	L. J. Coverstone.
Warmspring	Crook	1,600	7	42.9	.....	74	3	9	15	35	2.96	.....	1.31	0.8	9	7	12	11	nw.	Claude C. Covey.
Weston	Umatilla	1,800	19	40.2	− 0.6	67	3	5	15	38	3.92	+ 0.71	0.65	6.0	18	0	2	28	ne.	M. A. Baker.
Williams	Josephine	1,368	17	46.8	+ 1.9	73	1	23	15	28	17.05	+11.61	3.10	T.	17	2	4	24	sw.	J. M. John.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of falls not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
¶ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 12, Columbia Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Montana.																															
Anaconda	Missoula		T.				.06			.10	T.			.19					T.	.15	T.	T.	T.	.55	.21	*	.15				T.		1.41
Bison Mountain	do	.27	.18				.06				.37			.02						.16	.58		.06	.44	.40	T.	.06						2.60
Columbia Falls	Flathead				1.03		.51			.11		.15					.58	.15					.74									3.27
Como	Bitter Root	.35	.10		.01					.03	.02			.01				.07	.22	.75	.01	.02	1.22	.78	.10	.05			.02				3.76
Darby	do	.29	.69				.07			.04	.01	.04							*	*	*	*	*	*	*	*	*	3.40	T.				4.54
Dayton	Flathead																															
East Anaconda	Missoula	.04	T.				.05			T.	T.			.15					T.	T.	.36	T.	T.	.70	T.	.18	.01				T.		1.49
Fortine	Flathead	.10	.22	.06	.16	.08	.11	.02		.18	.02		.10					.06	.40	.41		.03	.20	.15	.06	T.	T.	T.	.05	.05	.04		2.47
Hamilton	Bitter Root	.05	.21	.03																.30			.40	.72	.13	.02	T.					1.86
Hat Creek	Missoula	.30				.10	*	.16		*	.90	*	.50	.20						*	.90		.40	.50	.10		.06				.04		4.16
Jocko	Flathead																															
Kalispell	do	.01	.37	.43	.39	.02	.07			.08		T.	.22					.06	.21	.38	.01		.28	.28	.15	T.			T.	.03			2.99
Lost Creek	Missoula																															
Missoula	do		.01	T.	.01		.08			.08	.19	T.		.04					.05	.01	.14		.30	.11	.18	.04	.01			T.	.14		1.39
Ophir	do	.10	.18				.10				.26										.30		.20	.10	.02					.03		1.29
Ovando	do																															
Philipsburg	do	.15	T.				.12			.05	.12			.03						T.	.08	T.	.05	.48	.15	T.	.10						1.33
Pipestone Pass	do	.18								T.	.35			.11						.08				.05	.02	.21	.07				T.		1.07
Plains	Columbia		.01	.01	.30	.12				.20			T.						.45	.37	T.		.60	.57	.24								2.87
Pleasant Valley	Kootenai	.70	.07	.40	.40	.07				.04			.30	.10				.02	.50	.72	.07		.62	.40	.50					.08	.28		5.27
Polson	Flathead	.30	.50		.30					.18	.25			.11					.11	.14				.35									2.24
St. Ignatius	do	T.	.02	.14	.22	.10	.25		.02	.08	.22	.02		.02						T.	.01		T.	.03	.09					T.	.03		1.25
St. Regis	Missoula		.97	1.07	.22	.10	.16				.14	.02	.03	.01					.73	.67	.09		.51	.33	.17					.08	.04		5.34
Saltese	do	.80	1.20	1.95	.30	.30	.20			.50	.15			.20					2.00	.90	.20	.30		1.90	.50				.30	.80			12.50
Snowshoe	Kootenai	.25	3.69	2.72	.84	1.09	.08	.02	.09	.34	.23	T.	.14	.13				.11	3.81	3.15	.09	.13	2.05	2.11	2.45		.08	.10	.75	.85	2.02		27.92
Troy	do	.40	.80	.35	.10	.70			.25	.35		.10	.19					.15	.30	1.10	.70	.65	.50	.20				.35	.40	.80			8.39
Upper Lake McDonald	Flathead																															
Woodville	Missoula	.21								.04	.16	.02		.06							.26			.67	.02	.16	.18						1.78
Wyoming.																																
Afton	Snake																															
Alta	do	.03					.07			.07	.37	.16								.03	.02	.35	.30	.01	.07	.50	.75				.02		2.75
Bedford	do									T.	.38	.09								.08	.63	.20	.30	.22	.26	.08	.44				T.		2.68
Snake River	do	.20									.50	.10								.50	.70	.30	.90	.20		.60	1.00						5.00
Nevada.																																
San Jacinto	Snake						T.		T.	.42			T.	T.						T.	.69	T.	.13			.31	T.						1.55
Idaho.																																
Albion	Snake						T.			.30	*	.19		*	.10					.10	1.12	.33	.07	T.	.09	.37	.22				.22		3.11
Almo	do									.41		T.	.20							.10	.86	.23	.20	.12	.22	.42					.02		2.78
Blackfoot	do	.03								.67	.08	.03	T.	T.	T.	T.			T.	.35	.30	.10	T.	.32	.45	.50	.16						3.00
Blanche	do																															
Bogus Creek	Payette	.28					.31			.24	.18	.48	.22	.14	.18				1.22	.52	.06	1.58	.84	.14	.45					.32		7.16
Boise	Boise	.22				.08	.04			.08	.29	.03	T.	.30	.04				T.	.71	.05	.15	.67	.16	.10	.31	T.			T.	.18		3.43
Bonanza	Salmon																															
Bonners Ferry	Columbia	.34	.72	.24	.77	.12		.05	.07	.10								.26	1.03	.18	T.	.09	.52	.04	.06	T.		T.	.35	.42	.02		5.38
Boulder Mine	Boise	.60	.23			.25	.28			.23	.35	.54		.45	.40					1.60	1.39	.04	2.03	1.24	.25	.64	.03	.37					10.92
Buhl	Snake	.09								.22	.08	.24	.20	.09	.02					.06	.07	.60	.19	.24	.54		T.		.06	.02			2.72
Burke	Columbia	.39	1.32	2.37	.86	.45	.25		.03	.42	.44	T.	.27	T.					.89	1.72	.11	.89	.65	.64	.65		T.	.06	.32	.15	.68		13.56
Caldwell	Boise	.22	.02				.08			.03	.03	.08		.24						.17	.02	.03	.50	T.	.03	.15					.13		1.73
Calls Ranch																																
Camas	Lost River Region								.57					.12					T.	T.			T.		1.20							1.89
Cambridge	Snake	.05	.04				.31			.11	.12	.23			.07				T.	.38	.02		.82	.05						.05		2.25
Chesterfield	do																															
Clawson	do	T.				T.				.31	.05										.45	.08	T.	T.	.50	1.64						3.02
Coeur d' Alene	Columbia																															
Culdesac	Clearwater	.40	.44		.17	.62				.75				.17					.59	.70			.88	.32					.40			5.44
Dent	do	.20	.65	.07		.50	.33	.01		.70	.12	.09	.06	.12				.04	.72	.73	.46		1.04	.22	.31		.01	.28	.04	.22		6.92
Driggs	Snake						.05	.10	T.			.10								.29	.20	.17	.25	T.			.45	.70		T.		2.31
Edie	Lost River Region									.33				.20													26	.27	.18				1.24
Emmett	Payette	.20	.15				.11			.06	.09	.18		.03	.34					.30	.09		.40			.41	.04				.12		2.52
Forney	Salmon	.20																		.35	.33		.20	.37	.43	.40							2.28
Gilbert	Clearwater																															
Glenns Ferry	Snake	.12								.09	.08	.16		.29	.01					.78	.95	.30	.88	.30	.05	.20	.05				.06		4.32
Grand Forks	Columbia	.42	2.86	2.98	.36	.58	.35		.14	.36	.34	.12	.12	.08					1.98	2.08	2.05	.05	2.22	.93	.65	.07		.74	.79		1.03		20.90
Grandview	Snake																															
Grimes Pass	Boise	.41					.25			.20	.54		.05	.20					.92	1.40	.16	.90	1.29	.35	.77	.19				.16	.23		8.02
Guffey	Snake	.22					.08			T.	.04	.05		.19	.05					.04	.01	.15	.25	T.	.01	.23					.06		1.38
Hailey	Wood-Malad	.30								.13	.03				.08					.16	.30		.61	.40	.30	.31	.06						2.68
Henry	Snake																															
Hotspring	do	.04									.18	.19		.20						.22	.15	.45	.14			.24	.05				.08		1.94
Idaho City	Boise	.35				.21				.12	.32	.50		.60					1.38	.97		1.85	1.00	.68	.51							8.49
Idaho Falls	Snake	.02								.48	.06								T.	.06	T.	.05			.04	.35	.20	T.					1.26
Indian Valley	do	.18				.21	.19			.21			.10	.31					.31	.19		.85	.11		.12						.10		2.88
Irwin	do						.04				.52	.02									.18	.30	.40		.43	.49	.57	.04					2.99
Kellogg	Columbia	.15	.55	1.17	1.05	.30	.39	.02	.03	.18	.34	.03	.04	.15					.63	.58	.69		.26	.18	.33					.30	.51		7.88
Kooskia	Clearwater	.22	.26			.65	.68			.52	.44	.07	T.	.05				.01	.12	.14	.41		.62	.40	.14		.20	T.	.10	.07	.11		5.21
Lake	Snake									.40												.40	.10	.40		.40							1.70
Lakeview	Columbia	.10	1.10	.40	.40	.60	.10	.10			.30	.20	.10						1.20	1.05			.50	.15	.55				.25	.05	.60		7.75
Landore	Snake	.50	.39			.04	.70			.48	.10	.29		.16						.84	.45		1.24	.55	.15	.10			.15		.23		6.37
Lardo	Payette																															
Lewiston	Clearwater	.08	.14		.02	.68	.05	T.	T.	.32	.14	T.	.17	.11				.14	.15	.37	T.	.06	.72	.13	T.		.01	.02	.16	.02			3.49
Little Camas	Boise	.82				T.			.21		.02	*	*	*	.71					.85	1.57	.33	1.69	1.22	.20	.45					.12		8.19
Lost River	Lost River Region																															
Lowry	Owyhee	.08					.10			.10		.20		T.	T.					.89	.26	.26	1.18	T.		.47	.10			T.	T.		3.64
Mackay	Lost River Region									.14				.05									T.		.20	.09							0.48
Meadows	Salmon	.44	.24			.03	.50	.01		.13	.15	.23		.80						.96	.29		1.14	.45	.70	.90	T.		.03	.08			7.08
Milner	Snake	.01								.50	.02	.02								.50	1.33	.50	.50	T.	T.	.25	.25				.01		3.89
Moscow	Columbia	.45	.65	.10	.05	.20	.25	T.		.30	.30	.15	T.	.25					.20	.30	.85		.38	.55	.22		T.		.12	.05	.40		5.77
Mountainhome	Snake	.17								T.	.14	.19		.26	.06					.48	.64	.28	.98	.08	.04	.28							3.61
Murtaugh	do	T.	T.				T.				.05	.20	T.	.02	T.					T.	.84	.82	.37	.10		.18	.23				T.		2.81
Nez Perce	Clearwater					.43	.13	.51					.73										.70	.51	.12	.05							3.18
Oakley	Snake									.55											.50	.45	.10		.15	.30	.20	.05			.05		2.35
Orofino	Clearwater	.20	.45		.04	.72	.20	.03		.55	.22	.65	.45						.70	.35	.10	.15	.70	1.00	.80	.04		.04	.20	.11	.32		8.02
Payette	Payette	.08	.04				.15		T.	.07	T.	T.		.23	.02				T.	.15		.57		T.	.01	.16					.05		1.53
Pebble	Snake									.28	.20	.10		T.	.86					.09	1.98	.41	.91	.81	.31	.41	.70				.04		7.10
Pierson	Salmon		.05						T.				T.						1.00	.40			1.28	1.19			.90						3.82
Pleasant Valley	Boise	.32					.06			.09	.04	.05		.40	.02					.49	.15	*	.75	*	*	.35					.17		2.89
Pocatello	Snake	T.					T.			.47	.01	.02		T.	.05	T.				.36	.37	.29	.02	.23	.11	.53	.33	T.			.01		2.80
Pocatello Nursery	do										.75					.09				.28	1.10	.90	.45	.15	.40	.53							4.65
Poplar	do	.07								.43	.05	.03		T.	T.	T.				.25	T.	.32	.29			.43	.10				.51		2.48
Poplars	Boise																															
Porthill	Columbia	.18	.55	.12	.08	.80			.12	.10								.45	.35	.25		.07	.54	.11					.55	.36	.10		4.73
Pyle Creek	Payette	.83	.19		.18					.18	.19	.28		.22						1.95	.94		2.26	1.18	.23	.70					.30		9.63
Rupert	Snake	.02					T.			.41	.07	.08	T.	.06	.05	T.		T.	T.	.20	1.56	.35	.33	.05	.06	.34	.21	.01	T.	T.	.03		3.83
St. Maries	Columbia																															

TABLE 2.—*Daily precipitation for November, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Idaho—Cont'd.																																	
Salem	Snake				.03			.01		.37	.17	.05	.01	.07								.30	.27			.72	.34						2.34
Salmon	Salmon	.07								.08	.03	T.	T.	.02					T.	.01	.29		.20	.22	.03	.52	.01				T.		1.48
Salmon River Dam	Snake	.01					.01			.37	T.	.03	T.	.08	T.					.06	.20	.59	.14	.01		.15	.11	T.			.04		1.80
Sheep Hill	Boise		.48				.08						.50		.58					1.42	1.02		2.96	1.31	.20	.28					.19		9.02
Silver City	Owyhee	.48					.09			.11	.34	.24	.25							1.04	.98	.25	.08	.32		.27	.03				.04		4.72
Soldier	Wood-Malad										.15	.10		.24		.50	.24	T.	T.	.15	.05		.75	.94	.81	.75	1.00	T.			.05		5.71
Standrod	Snake	T.					.15			.33	.08			.04	.08					.02	.75	.29	.04	.08	T.	.20	.53				.03		2.61
Sugar	do	.04								.47	.24	.05		T.						T.	.23	.31				.98		.05			T.		2.39
Sunnyside	do	.30				T.	T.			.40	.20	T.	.10	.34					.21	1.03	.20	.73	.18	.02	.11	.11					T.		3.93
Tilden	do	T.									.59			.03	.05						.83	.33	.02	.03	.25	.61	.40				T.		3.14
Twin Falls	do									.26	.09	.19		.03						.41	1.19	.50	.37	.13		.54	.11				.13		3.95
Vernon	do	T.					.04			.50	.30	.06	T.	.08			.03			T.		.33	.47			.82	.73	.05			T.		3.41
Wallace	Columbia		.41	2.02	2.29	.92	.51	.23	.04	.02	.31	.33	.01	.14	.10			T.	1.86	1.77	.07	.12	1.42	.75	.79		.03	.01	.34	.28	1.00		15.77
Warfield	Wood-Malad																																
Wendell	Snake									.16	.06	.16			T.	T.				.80	1.45	.50	.83	.15		.40	.40				.03		4.94
Washington.																																	
Aberdeen	Coast	1.01	1.69	1.40	.71	.26	.02	1.08	.01	1.08	.74		.11					1.36	2.19	1.56	.24	.48	1.58	.61	.25	.67	.26	2.98	3.23	3.12	.12		26.76
Anacortes	Puget Sound	.29	1.06	.18				.02	.07	.03	.13		.24					.15	.33	.21	.10	.13	1.20	.49	.49	.24	.12	.28	1.51	1.11	.05		8.43
Baker	do	1.10	1.71	.91	.31			.34	.57	.24	.13	T.	.49					.64	1.54	.86	.31	.44	1.44	.93	1.07	.11	.06	.62	2.96	2.32			19.10
Bellingham	do	.20	.60	.50	.03			.05	.13	.03	.04		.26				.30	.35	.25	T.	T.	.15	.54	1.10		.21	T.	.50	1.25	.75	.37		7.61
Blaine	do	.27	.61	.10	.01	T.		.08	.20	.18	.19		.05					.68	.85	.09	.02	.15	.75	1.15	.15	.21		.52	2.60	2.00	.02		10.88
Bremerton	do	.96	1.05	.79	.02	.02	.08		.94	.28	.24	.05						.46	1.63	.64			.77	.22	.17		.18	.29	*	4.60	.25		13.64
Cedar River	do	1.98	1.00	.15	.40			.44	.31	.33	.69	.04	.29	.68				.57	1.72	2.00	.12	.33	.89	.68	1.41	.18		.34	1.09	1.10	.01		16.75
Centralia	Coast	.38	2.20	.50	.37	.30	.05	.32	.48	.30	.47	.02	.06					.66	1.57	1.40	.07	.10	1.40	.83	.33	.18	.05	.40	.71	1.63	.08		14.86
Cheney	Spokane	.27	.13	.37	.21				T.				.20				.37			.41			.29	.07					.23				2.59
Chopaka	Okanogan	.02	.23	.01	T.	.02		.14	.21	.21	.01		.04					.01	.03	.08			.46	.06	.01				.03	.13	.03		1.73
Clealum	Yakima	.29	1.70	.45	.02	.15	.03	.17	.09	.18	.06			.20					.75	.90	.12		1.31	.47	.34		.05	*	.82	.45	.07		8.62
Clearbrook	Puget Sound	.01	2.42			.03	.06	.01	.30	.18	.26	T.	.39					1.01	.72	.64		.24	1.10	2.13		.11	.22	2.42	.30	2.34			14.89
Clearwater	Coast	1.88	1.67	.30		.04	.25	.80	.06	1.90	.95		.10					1.60	3.00	.65	.03	.02	1.55	.95	.40	.92	.15	1.65	4.65	2.95	.30		25.87
Colfax	Palouse	.11	.87	.29	.23	.27	.01	.02		.24	.08	.04	.03	.18					.27	.81	.03		.54		.26				.13	.47			3.79
Colville	Columbia	.14		.11	.30	.22		.09	.34									.35	.76				.12	.16					.14	T.			3.19
Conconully	Okanogan	.13	.41				.40	.47	.43		.05		.08						.05				.74			T.		T.	.32	.12			3.20
Coupeville	Puget Sound																																
Crescent	Spokane	.21	.44		.02	.42		.29		.26	T.		.26					.12	.34	.09			.45						.32				3.22
Davenport	Columbia	.14	.39	.01	.05	.51			.01	.03				T.				.15	.47	.05			.47			T.			.12	.06	.07		2.54
Dayton	do	.17	.42		.21	.31	.07	.02		.15	.20		.13	.43					.31	.15	.39		.87	.20	.19	T.		.01			.97		5.20
Detroit	Puget Sound	1.05	2.40	.60		.65		.38	.83	.42	.23	.20	.02	.08				.91	2.66	1.36	T.	.01	1.75	.67	.44	.23	.02	.66	2.76	3.44	.03		21.80
Dixie	Columbia	1.00	2.00			.70	.32	T.		.33	.15	.33	.10	.30				.05	.57	.47	1.57		1.68	.78	1.08	.10	.50		.50		1.50		14.03
Duckabush	Puget Sound	2.28	1.62	.17	.12	T.	T.	2.80	2.00	1.04	.71	.17						1.70	3.27	.42	.05		1.77	1.52		.95	*	*	*	*	a		33.86
East Sound	do																																
Ellensburg	Yakima	.23	.47	.12		.07	T.	.09	.07	.14	T.			.11				T.	.20	.14			.71	.18	.06		T.	T.	.12		T.		2.71
Ephrata	Columbia																																
Forks	Coast																																
Fort Simcoe	Yakima	.25	.50		.20	.10	.41			.20				.20				.15		.85			2.00	.20	.45					.20			5.71
Goat Lake	Puget Sound	.50	4.06	3.63	.16	.23		.75	.90	.18	.24	.12	.07	.71					5.42	4.11	.71	.20	2.70	2.93	2.12		.60	.75	2.60	4.20	2.70		40.59
Gold Creek	Yakima	*	*	.24	*	.19	.04	*	.40					*	.15				*	*	2.30	.10				.20		.34						3.96
Goldendale	Columbia	.25	.03	.02	.15		.18		.04	.18								.25	.50		.44	.55	1.00	.04	.55	.02	.01	.04	.04	.74			5.03
Granite Falls	Puget Sound	.10	.50	.30		.60	.10	.02	.10	.46	.40	.04	.43	.07				.26	.63	.47	.04	.05	.68	.12		.64		.43	.54	1.43	.33		8.74
Hatton	Columbia	.35	.18	.13	.46	T.		.05					.11	T.					.25	.03			.45	.02					.09	.03			2.15
Huntsville	do	.08	.50		.10	.44	.02			.10	.10			.53				.10	.22	.05	.10		.64	.13	.10			.15			.60		3.96
Irene Mountain	do	.03	.09			.14		.04	.13	.08	.01		.01					.02	.08	T.			.20			.01			.06				0.90
Kennewick	do	.13		T.	.05	.53		.05	T.					T.	.22			.05	T.	.20	.12		.62	.01					.03				2.01
Kettle Falls	do	.57	.07		.04	.17		.11	.29	.07								.42	.39				.39		.06		.17		.37	.55			3.67
Kiona	Yakima	.17	.06	.23		.30			.02					T.				.13	.06				.63	.12									1.72
Kosmos	Columbia	1.42	2.27	1.50	.09	.30	.31	.03	.20	.13	.40	.03	.16	.22				.46	.63	1.79	.26	.06	2.33	1.15	.84	.16	.07	.30	1.10	1.53	.06		17.80
La Center	do	1.00	1.70	1.07	.27	.47	T.	.60	.98	.32	.32	T.	.34	.12				.70	.60	1.13	.08	.20	1.51	.90	.02	.03	.04	.65	.23	.72			14.00
La Crosse	Palouse	.23	.45	.17	.22	.63	T.	.08	T.	.03	.05	.02	T.	.35				.12	.33	.04	.04		.75	T.	.17		T.		.26	T.	.42		4.36
Lake Clealum	Yakima	.45	2.03	1.14	.03	.02	T.	.21	.08	.23	.12	.02	.03	.14				.34	.16	.43	.06		1.40	1.70	.65	.08	.12	1.15	.63	1.20	T.		12.42
Lake Kachess	do	.76	3.09	1.65		.20		.13	.15	T.	.24		.10	.10				.58	1.62	2.42	.25	T.	2.36	.58	1.20	.24		.20	1.87	2.06	.19		19.99
Lake Keechelus	do	.60	3.90		.90				.50	.05	.42	.45						1.00	1.90	2.00	.50	.20	2.75	1.50	.50	.30	.40		1.50	1.80			21.17
Lakeside	Columbia	.25	.63	.04	T.	.08		.23	.14	.10	.02			T.				.11	.13	.03	T.	T.	1.00	.15	.14	.01		.19	.20	.19			3.64
Laurel	do	1.17	2.01	.22	.12	.18		.42	.57	.30	.30			.10				.35	1.54	1.30			2.06	.29	.83	.05	.12	.15	1.03	.61	.07		13.73
Lester	Puget Sound	.90	3.50	1.55		.35		.10	.10		.40		.15	.35			.45	.30	.85	.10	.75		1.80	.80	1.10	.10		.05		.80			14.50
Lone Tree	Coast	1.48	1.46	.49	.06	.24	.04	.73	.66	.72	.60		.05	.10				1.11	2.26	.75	.08	.05	1.27	.29	.12	.90	.30	1.77	4.02	2.75	.14		22.44
Longmires Springs	Puget Sound		.80	.70	.25	.50	.41	.30	.10	.15	.20	.08	.20	.11	.18	.70	.40	.20		.25	.90	.17	.56	.40	.14		.25	1.10	.90	1.06	1.01		12.02
Lost Creek	Columbia	.09	.24	T.	.08			.30	.50	.12	.10	T.	T.				T.	.09	.20	T.			.25					T.		.35			2.32
Lucerne	do																																
Lyle, (Pine Hill)	do	.53	1.04	.09	.05	.05		.10	.29	.15	.19			.10				.30	1.43	2.00			2.15	.75	.68	.10	T.	.26	.69	.50	.14		11.59
McCumbers Ranch	do																																
Mottingers	do				.02									T.					.19	.34			.71	.10					.05	.07			1.48
Mount Pleasant	do	.75	2.25	1.10	.55	.30	.10	.40	.60	.40	.27	.03	.19	.48				.50	.85	1.30	.43	.06	2.35	.35	.55	.10	.25	.35	.35	.63	.31		15.71
Moxee	Yakima	.08	.15	.02	.09	.11		.09	.07	.14	.01							.09	.12	.03			.73	.06	.05			.01					1.85
North Head	Coast	1.12	.73	.29		.55	.10	1.68	.12	.76	.18		.38	.03			.03	.67	.73	.57	.27	.65	.58	.35	.21	.39	.33	1.10	.95	1.07	.13		13.97
Northport	Columbia	.05	T.	.29	.30	.22	.04	T.	.30	.06	.30	T.						.41	.20	.15		.30	.05			.10			.14				2.91
North Yakima	Yakima	.11	.14	.02	.07	.13		.08	.09	.10				T.				.08	.09	.01			.70	.08	.05			.01	T.				1.76
Nutland	Columbia	.07	.04	.18	.07			.04	.09	.10	.02		.16					.17	.18	.17	.09	1.56	.45						.36	.02	.01		3.78
Odessa	do	.22	.30	.05	.03	.37		T.	.09	.02	T.			T.	T.			T.	.32	.18			.60	.02				T.	T.	.09			2.29
Olga	Puget Sound	.81	.37	.22					.17	.11	.18		.31					T.	.32	.18			.60	.02									9.45
Olympia	do	.48	2.26	1.01	.02	.12	.12	.38	.62	.25	.40	.15	.02	.07				.48	.38		.09		.42	.71	.83	.21	.10		1.40	1.79	.87		9.45
Omak	Okanogan	.29	T.					.15	.20	.26	T.		.02					.58	2.67	1.64	.09	.21	1.50	.50	.64	.41	.08	.17	2.00	3.30	.25		19.94
Oroville	do		.25		.01	.01		.01	.20	.20			.01							.11			.60							.05			1.68
Peola	Snake	.23	.57	T.	.03	.17	.23			.15	.08	.10	.02	.27				.02	.52	1.00	.48		1.16	.71	.81	.01	.01	T.	T.	.09	.03			1.04
Pomeroy	do																																6.69
Port Crescent	Coast	.95	.67	.02		.17		.13	.04	.10	.53		.20					.64	1.09	.22	.63	.03	1.17	.74	.22	.50	.06	1.28	3.37	3.10	.11		15.37
Port Townsend	Puget Sound	.32	.15	.01				.08	.07	.02	.08	.13	.17	.26				T.	.03	.10		.28	.38	.40		.03		.33	.02	.89	.15		3.90
Pullman	Palouse	.21	.88	.07	.13	.40	T.	.18	.04	.06	.20	.08	.09					.12	.12	.92			1.16	.16	.24				.61				5.67
Quiniault	Coast	2.30	3.00	.72	.01	.25		1.18	1.20	1.14	.72	.01	.01	.01				1.90	5.50	2.00	.61	.15	3.74	3.05	.49	1.02	.35	2.00	6.33	4.10	.41		42.29
Republic	Columbia	.18	.16	T.	.04	.15	.02	.07	.24	.12	.06	.10	T.					.15	.12				.34			11		T.	.09	.18			2.13
Rex Creek	do																																
Ritzville	do	.46	.08	.10	.26	.25		.01		.06			.15					.32	.14	.11		.36	.29	.09				.10		.06	.10		2.94
Rock Lake	Palouse	.64		.20		.22	.81		.08			.06		T.			*	.79		.09			.77		.08				.35	.08			4.17
Rosalia	do	.35	.80	.33	.34	.43	T.	.04	.02	.10	.04	.02	.01	.05				.24	.35	.16			.55		.16				.15	.25	.16		4.55
Russells Ranch	Yakima																																
Seattle (1)	Puget Sound	.88	.44	.02	.11	.21	T.	.30	.35	.12	.27	.01	.09	T.				.94	1.17	.23		.09	.31	.48	T.	.12	T.	.80	.94	1.21	.02		9.11
Seattle (2	do	.13	.68	.54	.01	.18	.07	.15	.38	.34	.18	.08		.12				.25	1.60	.44			.37	.09	.37	.15		.05	1.35	1.85	.14		9.52
Sedro-Woolley	do	.28	1.51	.33	.01	.41	.20	.03	.05	.17	.14	.04	.80					.40	.32	.30	.07	.10	1.35	.55	.66	.88	.09	.32	1.01	1.11	.05		11.18
Sixprong	Columbia	.08	.04		.05	.20	T.		.04	.06				.12				.16	.09	.06	.03		1.10	.20	.15					.04	.04		2.46
Skagit Power Dam	Puget Sound																																
Snohomish	do	.10	.38	.33	.03	.30	.67	.09	.24	.28	.21	.05	.11	.18				.30	.60	.58	.03	T.	.46	.37		.27		.15	1.12	1.60	.42		8.87
Snoqualmie	do	.50	1.90	.95	.08	.48	.04	.07	.31	.03	.51	.07	.30	.24	T.			.60	2.40	1.47	.03	.28	1.20	1.13	.59	.22	.02	.13	1.33	2.20			17.08
Snyders Ranch	Columbia	.18	1.50	.30	T.			.44	.40	.24	T.		.12					.24	.30	.57			1.20	.63	.11			.25	.50	.76			7.74
South Bend	Coast																																2.69
Spokane	Spokane	.29	.13	.03	.29	.33	T.	.04	T.	.04	T.		.08	T.				.44	.08	.09		T.	.43	T.	.07	T.		.12	.15	.08			
Stehekin	Columbia																																

a signifies 13.27 inches.

TABLE 2.—*Daily precipitation for November, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Washington—Cont'd.																																	
Stokes Ranch	do	.31	.83	.39	....	.03	....	.32	.40	.17	....	....	.20	....	....	....	....	.15	.22	.27	....	....	1.33	.13	....	....	....	....	1.10	.20	....	....	6.05
Sullivan Lake	Pend Oreille																																
Sumner	Puget Sound	.58	1.59	.70	.02	.30	.18	.07	.29	.28	.62	.10	.04	.26	....	....	....	.54	1.61	1.11	.18	.13	.85	.44	.55	.15	....	.28	.80	1.02	....	....	12.69
Sunnyside	Yakima	.06	.04	T.	.11	.14	....	.03	.09	T.	....	....	.02	....	....	....	....	.09	.01	.03	....	....	.68	.03	.10	....	....	.01	....	....	....	....	1.44
Tacoma	Puget Sound	1.77	.93	.30	.14	.19	....	.33	.25	.12	.55	.04	.17	....	....	....	T.	1.82	1.52	1.01	.24	.34	.83	.88	.10	.30	T.	.80	.79	1.19	.12	....	14.73
Tatoosh Island	Coast	1.55	.29	.03	....	.46	.10	.54	.63	.14	.15	....	....	....	....	....	.16	1.22	1.27	.17	.08	.55	1.46	.27	.32	.85	.48	2.00	1.53	1.50	.77	....	16.52
Tieton	Yakima	*	1.53	T.	T.	T.	.23	.30	....	.08	....	....	....	T.	....	....	....	T.	.49	.53	T.	....	1.53	.49	.77	....	T.	T.	.49	.62	.02	....	7.08
Touchet	Columbia	.04	.01	....	.01	.10	.02	T.	T.	.04	T.	....	T.	.53	....	....	....	T.	.05	.10	.15	.03	.58	.03	....	....	....	T.	.03	.02	.02	....	1.76
Touchet Ridge	do	....	1.80	....	....	1.70	.02	....	.30	....	....	.20	....	....	1.20	....	....	....	....	....	2.15	....	....	....	3.10	....	....	.25	.05	....	.90	....	11.67
Trinidad	do																																
Twisp	do																																
Tyee	do	....	1.54	....	....	.85	....	....	.68	....	.04	....	.07	....	....	....	....	.73	....	1.43	....	....	....	1.80	....	.02	....	....	1.07	....	....	....	8.23
Vancouver	do	.85	1.65	.75	.39	.12	.08	.69	.72	.48	.32	.02	.18	.35	....	....	....	.68	.43	.97	.21	.32	1.41	.60	.22	.05	.03	.40	.18	.68	.01	....	12.79
Vashon Island	Puget Sound	.60	2.01	.18	.01	T.	.22	.17	.40	.25	.33	.15	T.	.01	....	....	.01	.48	1.85	.80	.03	.08	.89	.43	.41	.18	.04	.43	1.35	1.98	.05	....	13.34
Wahluke	Columbia																																
Wallace	Okanogan	.34	.28	....	....	T.	....	.28	.33	.31	T.	....	.12	....	....	....	T.	.13	....	....	....	....	.65	....	....	.85	....	....	.60	.85	....	....	4.74
Walla Walla	Columbia	.19	.72	T.	.03	.25	.03	.01	....	.13	.04	....	.18	.46	....	....	....	.02	.04	.38	.02	.11	.65	.15	.02	....	....	.18	T.	.37	....	....	3.98
Waterville	do	.30	.26	.02	T.	.11	....	.12	.18	.06	T.	....	T.	.07	....	....	....	.05	T.	....	T.	....	.65	.21	....	T.	....	.30	....	.24	....	....	2.57
Wenatchee (near)	do	.20	.82	.09	.03	.09	....	.22	.10	.12	.04	.04	T.	.12	....	....	....	T.	.31	.11	....	....	.99	.25	.03	T.	....	.25	.15	.11	....	....	4.07
West Branch	Spokane																																
Wilbur	Columbia	.40	.35	....	T.	.22	....	.12	.03	.06	....	....	.08	....	....	....	....	.02	.36	....	....	....	.50	....	....	....	....	....	T.	.30	....	....	2.44
Yale	do	2.10	4.10	1.75	.30	.35	.34	.38	1.05	.70	1.20	....	.50	....	....	....	....	1.40	2.00	2.50	.18	.26	3.30	1.65	.70	.45	.29	.70	1.92	2.90	....	....	31.02
Zindel	Snake	....	....	....	.12	.64	....	....	....	....	.12	....	....	....	....	....	....	....	1.01	.17	1.10	1.04	....	....	....	....	....	....	....	....	....	....	4.20
Oregon.																																	
Albee	John Day																																
Albany	Willamette	.16	1.46	.80	.40	.30	.10	.20	.86	.30	.42	.22	....	.12	....	....	....	.08	.36	.28	.84	....	2.30	.40	1.02	.02	.12	.06	.42	.06	.62	....	11.86
Ashland	Rogue	.06	....	....	....	.41	.01	.02	T.	.08	.28	.02	....	.37	.03	....	....	.07	.68	1.50	.76	1.63	.65	.23	T.	.01	.11	.02	.05	.43	....	....	7.42
Astoria	Columbia																																
Baker City	Snake	.05	....	....	....	.05	.01	....	.03	.01	T.	.12	.01	.08	.02	....	....	....	.04	.19	.10	.27	.59	.19	.02	....	....	.05	.01	....	.06	....	1.90
Bay City	Coast	1.42	1.25	.78	.05	.18	.24	.92	1.01	1.20	.80	....	.18	.46	....	....	....	.46	.90	.90	.52	.36	1.60	.46	.20	.16	.28	.24	2.20	2.65	.12	....	19.54
Bear Creek	Deschutes	.10	....	....	....	.31	....	....	....	.04	....	....	....	.20	....	....	....	....	.07	.27	....	.75	.70	....	....	....	....	....	....	....	....	....	2.44
Beaver Creek	do																																
Bellfountain	Willamette	.25	1.71	.29	.63	.28	.01	.76	1.17	.74	1.09	.12	.01	.22	....	....	....	.22	.61	1.06	.38	.32	3.03	.92	1.06	.23	.20	.30	.20	1.00	.19	....	17.00
Bend	Deschutes	....	....	....	....	.04	....	....	....	.02	T.	....	....	.50	....	....	....	....	.20	....	.38	....	2.00	1.03	.50	....	....	T.	....	....	....	....	4.67
Big Basin	John Day	....	....	....	....	.04	....	....	....	.10	....	.35	....	....	....	....	....	....	....	....	.20	T.	1.20	.30	....	....	....	.20	....	....	....	....	2.39
Birch Creek	do	T.	....	....	....	.14	....	....	....	.40	.20	....	.90	....	....	....	....	....	T.	T.	.70	T.	.36	.10	.50	....	T.	T.	.10	T.	....	....	3.40
Black Butte	Willamette	.20	....	....	....	.35	....	.20	.80	.30	1.35	.30	.65	....	....	....	....	.10	.55	.65	.45	1.00	2.35	1.50	1.10	.05	.10	.30	.05	.25	.70	....	13.30
Blalock	Columbia	T.	.10	....	T.	.19	....	.03	T.	.22	.04	....	.45	....	....	....	....	.32	.07	.07	.06	T.	1.48	.16	.20	....	....	....	.05	T.	.04	....	3.48
Blue Mount Sawmill	Umatilla	.42	.75	....	....	.38	.27	T.	T.	.24	.28	.20	.10	.85	.05	....	....	.66	.19	1.10	....	1.60	.71	.37	.05	.05	....	.37	.04	.72	....	....	9.40
Buckhorn Farm	Rogue River	.21	....	....	....	.40	....	1.45	1.81	.98	1.05	....	.17	....	....	....	....	.89	1.95	2.00	1.02	5.43	2.71	.73	.02	....	....	....	.78	....	....	....	21.60
Butte Falls	do	.23	....	....	T.	.70	.07	.01	.10	.22	.65	.30	....	.21	.03	....	....	.02	.33	1.95	3.85	1.19	3.10	2.65	1.00	.06	.13	.23	.22	.08	1.26	....	18.56
Cableville	Snake																																
California Gulch	Umatilla	.65	.15	....	....	....	.66	....	....	.02	.16	....	....	1.20	.04	....	....	....	....	.43	....	.50	....	.40	.08	....	.02	....	.18	....	.32	....	4.81
Canyon City	John Day	.04	....	....	....	.16	.02	T.	....	.06	.24	.01	....	.12	.02	....	....	T.	.02	.12	T.	.79	.08	.01	....	T.	....	.04	....	.08	....	....	1.75
Cascade Locks	Columbia	1.10	3.00	1.03	.43	.12	.40	.34	.84	.45	1.09	.05	.08	.24	....	....	....	1.00	1.47	2.26	.56	.18	4.23	1.35	.67	.27	.35	.51	2.08	1.55	.45	....	26.10
Cascadia	Willamette	.05	.35	....	.11	.39	.11	.36	.52	.49	1.10	.21	.06	.82	....	....	....	.46	.40	.82	1.55	.29	2.89	1.77	.86	.20	.12	.22	.38	.32	.78	....	15.63
Cazadero	do	.71	2.76	.85	.58	.44	.43	.30	.67	.47	.66	T.	.03	.92	....	....	....	.42	.51	1.52	.77	.22	2.99	.50	1.61	1.17	.24	.10	.27	1.17	.41	....	19.72
Columbia Mine	Snake	.25	.09	....	....	.16	.13	....	....	.35	.55	.06	.90	....	....	....	....	....	.10	.42	....	T.	2.70	.77	.10	....	....	....	.25	....	....	....	6.83
Condon	John Day																																
Coquille River L. H.	Coast	.17	.08	.09	.35	.46	....	1.34	1.38	.45	.40	.09	....	.48	....	....	....	.10	1.16	.61	.34	.52	4.02	1.42	.84	.29	.54	.15	....	.85	.31	....	16.44
Cornucopia	Snake																																
Corvallis	Willamette	.16	1.88	.22	.52	.34	....	....	1.37	.45	.06	.38	.04	....	....	....	....	.78	.45	.67	.92	1.44	.40	1.00	1.06	.05	.34	....	....	....	....	....	11.53
Cracker Creek	Snake	.03	T.	T.	T.	T.	....	T.	....	.04	.43	....	.38	....	....	....	....	T.	.05	.07	T.	1.60	.06	.01	....	T.	....	.30	T.	....	....	....	2.97
Crescent	Deschutes																																
Dayville	John Day	....	....	....	....	.12	....	....	....	.09	.06	T.	....	.10	....	....	....	....	....	.09	....	.08	.40	.12	.02	....	T.	.02	.04	....	....	....	1.08
Doraville	Columbia	.77	1.97	1.17	.09	.26	.12	.70	.71	.33	.49	.03	.15	.17	....	....	....	.32	.83	1.76	.16	.09	2.05	.59	.67	.32	.10	.36	.87	1.72	.13	*	16.93
Drain	Umpqua	.05	....	....	.12	.50	.03	.25	.61	.73	1.30	.15	.02	.20	....	....	....	....	.07	.73	.31	.15	4.63	1.52	.80	.18	.11	.15	.13	.60	.24	....	12.98
Duncan	Umatilla	....	.30	....	....	.50	.80	....	....	....	.30	.20	....	....	....	....	....	1.00	....	1.25	....	1.70	1.00	.55	....	....	....	....	....	.60	....	....	8.20
Echo	do	T.	.04	....	....	.21	....	T.	....	....	.04	....	....	1.00	....	....	....	T.	T.	.08	.16	....	.63	.20	.03	....	....	....	.07	....	....	....	2.46
Elkhorn Ranch	Coast	.51	1.00	.16	.20	.48	....	1.38	1.40	1.50	.23	.50	....	.80	....	....	....	.11	1.28	1.60	1.40	.41	6.40	3.96	2.11	.60	.45	.28	.25	1.80	.51	....	29.28
Ella	Columbia	.05	.10	....	.60	....	....	....	.05	.05	....	....	....	.65	....	....	....	.07	.07	.10	....	.05	.85	.15	.06	.03	....	....	....	....	....	....	2.88
Embody	Deschutes	.02	.04	....	....	....	.01	.02	.01	.01	....	....	....	....	....	T.	.16	....	.15	.20	.20	.20	.30	.11	....	....	....	....	....	....	....	....	....	1.43
Eugene	Willamette	T.	.15	T.	.09	.39	.05	.03	.38	.37	.83	.34	....	.35	....	....	....	.32	.06	.21	.23	....	1.91	1.08	1.03	....	.11	....	.12	.01	.55	....	8.51
Eugene (River sta'n)	do	T.	.24	T.	.10	.40	T.	.54	.40	.94	.32	....	.32	.34	....	.38	....	.24	.06	.24	.30	....	1.80	1.34	.75	.06	.24	T.	.14	.04	.60	....	9.79
Fairview (1)	Coast	T.	.31	.78	.56	.63	1.50	.68	.32	1.80	.83	.08	.86	....	....	....	....	.12	.35	1.57	.23	.50	5.65	1.94	1.21	T.	.23	.43	.16	1.57	T.	....	22.31
Fairview (2)	Snake	....	.10	.02	....	T.	....	....	....	T.	....	.30	T.	.50	....	....	....	....	T.	.04	....	1.60	.20	.30	....	....	....	....	....	....	....	....	2.46
Falls City	Willamette																																
Fir Glen	Coast																																
Florence	do	.75	2.08	.21	.55	.36	.04	.95	.45	.54	.60	.11	....	.69	....	....	....	.36	1.35	.65	.32	.39	3.63	1.60	1.05	.32	.60	.42	.29	1.13	.19	....	21.63
Forest Grove	Willamette	.70	.42	.89	.22	.15	.09	1.11	.91	.80	.27	....	.12	.10	....	....	....	.58	1.08	1.10	....	.23	2.20	.50	.32	.13	.15	.56	.62	1.25	.03	....	14.53
Galice	Rogue	.15	.10	....	....	.44	....	1.30	1.26	.98	1.21	.09	....	.27	.02	....	....	....	.60	1.47	1.57	.67	2.41	2.02	.47	.07	.08	.12	.03	.52	.27	....	16.12
Gardiner	Umpqua	.48	1.22	.10	.42	.38	.08	1.22	2.22	.78	1.00	.32	....	.63	....	....	....	1.91	.22	.45	.34	.44	2.83	.99	.85	.52	.43	.27	.20	1.12	.34	....	19.04
Glendale	do	T.	....	....	T.	....	....	.70	1.30	.90	.25	T.	.20	T.	....	....	....	....	T.	.25	1.20	T.	1.30	1.40	.10	....	....	T.	.20	....	T.	....	7.80
Glenora	Coast	4.00	4.33	4.67	2.00	1.50	.30	.42	.30	.48	....	....	....	....	....	2.00	2.60	2.00	4.00	4.00	4.00	6.00	.80	....	1.70	1.00	2.18	3.14	.75	1.75	3.68	....	57.00
Gold Beach	Rogue	.15	.07	....	.48	.76	.73	1.84	2.33	1.02	1.05	.05	.33	....	....	....	....	....	1.67	1.03	2.12	.51	5.04	2.80	.87	.36	.78	.20	.11	.92	.84	....	25.46
Granite	John Day	.25	....	....	T.	.18	T.	T.	....	.20	.05	T.	T.	.35	T.	....	....	....	.05	.10	1.00	T.	1.10	.35	.08	....	T.	....	T.	....	.22	....	3.93
Grants Pass	Rogue	.05	....	....	....	.32	....	.55	.65	.44	.44	.04	....	.20	....	....	....	.03	.26	.61	1.29	.45	1.81	.97	.45	.08	.06	.08	.03	.04	.34	....	9.19
Grass Valley	John Day	.06	.08	....	....	.16	....	....	.12	....	.08	....	....	.21	....	....	....	.18	.22	.15	....	1.18	.38	.46	....	....	....	....	....	.06	....	....	3.34
Greenleaf	Coast	.55	2.78	.25	.84	.20	....	1.09	1.50	1.25	1.42	.07	....	.47	....	....	....	32	1.17	1.16	.88	.31	6.82	2.85	1.48	.42	.62	.25	.51	1.71	.25	....	29.17
Happy Home	Umpqua	1.14	.94	.38	.60	.52	.47	2.04	1.60	1.10	1.14	.94	.52	....	....	....	....	34	1.72	1.60	2.02	.18	.44	6.84	4.38	1.64	.40	.52	....	.42	1.18	1.42	....	34.85
Hazeldell	Willamette	.15	....	....	.35	.28	.12	....	....	.90	.50	....	.58	....	....	.11	.18	.50	1.02	2.70	2.60	.70	.30	....	.15	....	.35	.15	.70	....	....	....	12.34
Headworks	do	.82	2.28	1.05	.60	.52	.31	.40	.65	.58	.80	.03	.11	.82	....	....	....	.98	.66	1.86	.57	.20	2.40	1.52	1.43	.33	.25	.22	.49	1.10	.62	....	21.60
Heppner	Columbia	.02	.18	....	....	.23	....	.08	....	T.	.15	.02	....	.34	....	....	....	....	....	.15	....	.54	....	.20	T.	....	....	....	....	....	....	....	1.91
Hermiston	Umatilla	.01	.02	.02	....	.31	....	.03	T.	....	.05	T.	....	.30	....	....	....	.03	.07	.02	.21	T.	.64	.15	T.	....	....	.02	.05	T.	1.02	....	2.95
Hilgard	Grande Ronde	T.	....	....	.10	.30	....	....	....	....	.05	.25	.10	....	....	....	....	....	.20	....	....	.20	.70	....	....	....	....	....	....	T.	.50	....	2.40
Hood River	Columbia	.65	1.20	.05	.05	.05	.30	.05	.05	.25	.30	....	T.	T.	....	....	....	.60	.80	1.80	.20	.30	2.00	1.10	.15	.10	.05	.10	.60	1.00	T.	....	11.75
Howardville Station	Grande Ronde	.40	.19	....	.06	.29	.11	....	....	.46	.19	.08	....	.27	....	....	....	.20	.56	.56	....	1.67	.65	.11	....	.02	....	.43	.02	.37	....	....	6.64
Huntington	Snake	....	....	....	....	.25	....	....	.15	....	....	....	.25	.02	....	....	....	....	....	.50	....	.75	....	....	....	....	....	....	....	....	....	....	1.92
Ibex Mine	John Day	.18	.02	....	....	.20	.04	T.	T.	.23	.22	.06	.10	.55	.04	....	....	.02	.23	.32	....	1.61	.38	.07	....	T.	.02	.26	....	.08	....	....	4.83
Ironside	Snake	....	....	....	....	.05	....	....	....	....	.09	.18	.30	.20	....	....	....	....	....	.04	T.	.50	T.	T.	....	....	T.	.20	....	....	....	....	1.56
Jacksonville	Rogue	.14	....	....	....	....	....	.02	.14	.34	.44	.04	....	.14	....	....	....	.02	.22	.77	2.12	1.12	1.60	1.41	.38	.07	....	.10	....	.11	.51	....	9.69
Joseph	Grande Ronde	....	....	....	.20	....	....	....	....	....	.40	....	.10	.20	....	....	....	.30	.32	.80	.40	.30	.70	.10	....	....	....	....	....	....	....	....	....	3.82
Kamela	do	.45	.05	....	....	.35	....	....	....	.05	.25	.40	.40	.20	....	.05	....	.10	.25	....	2.00	1.90	.15	.10	....	....	....	.10	.60	....	....	....	7.40
Keeps Mill	Deschutes																																
La Grande	Grande Ronde	.26	.04	....	....	.22	.06	....	....	.12	.23	.35	....	.33	.05	....	....	.04	....	.43	....	1.00	.78	.04	....	T.	....	....	....	.26	....	....	4.24
Lilyglen	Rogue	.11	....	....	....	.43	....	....	.10	.10	.30	.25	.37	T.	....	....	....	.21	1.19	2.47	1.07	2.25	1.09	.50	T.	.18	.18	T.	.18	.50	....	....	11.48
Long Creek	John Day	....	....	....	....	.20	....	....	.30	.40	....	.20	....	.20	....	....	....	....	....	....	.45	.25	.30	....	....	....	....	....	.30	.15	....	....	....	2.75
Madras	Deschutes	....	T.	.20	.10	....	T.	....	....	.02	....	....	....	....	.05	....	....	.50	T.	T.	.60	.40	.30	T.	T.	....	....	....	....	....	....	....	....	2.17
Maury	do	.21	.99	.02	....	.41	.11	.19	.35	.44	.91	.48	....	.60	....	....	....	.27	.80	1.93	1.44	.35	5.40	2.83	.82	.14	.20	.28	.78	.38	.74	....	21.14
McKinzie Bridge	Willamette	.29	....	....	....	.21	.08	....	.10	....	.11	.14	T-	.25	....	.20	.05	.10	.25	.04	.60	.44	.07	....	T.	T.	....	....	....	....	.05	....	....	2.98
McKay	Umatilla																																
McMinnville	Willamette	.74	1.53	.74	.38	.16	T.	.55	.97	.83	.25	....	.14	T.	....	....	....	.50	.51	1.18	.05	.47	2.42	.76	.29	.16	.14	.42	.16	1.02	.01	....	14.38
Meacham	Umatilla	....	.62	....	....	....	.32	....	....	....	.36	....	.42	.33	....	....	....	....	....	....	.70	....	1.10	.78	....	....	.65	.69	....	....	....	....	....	5.97
Mikkalo	John Day	.05	.17	....	....	.45	....	T.	.02	.01	.09	.01	....	.61	....	....	....	T.	.15	.20	.08	....	1.07	.36	.10	....	....	....	.03	....	....	....	....	3.40

TABLE 2.—*Daily precipitation for November, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon—Cont'd.																															
Miramonte Farm	Willamette	.49	1.84	.94	.42	.23	.01	1.15		.44	.34		.04				.34	.37	.36	1.11	.20	.36	1.54	.81	.60	.13	.06	.04	.09	.74	T.		12.85
Monroe	do	.33	1.98	.21	.40	.25		.99	1.16	.58	.74	.18	.01					.38	.51	.45	.28	.22	2.70	1.25	.92	.20	.25	.24	.23	.98	.10		15.45
Mountain Home	Columbia	.96	2.62	1.19	.07	.34	.08	.74	.62	.64	.48	.02	.15	.20				.58	1.48	2.30	.35	.08	3.00	.83	.75	.49	.07	.40	1.26	2.22	.10		22.02
Mount Angel	Willamette	.18	2.03	1.60	.80	.52	.24	.48	.73	.13	1.06	.35	.25	.37				.47	.65	.50	1.25	.10	2.00	.78	.55	.12	.20	.12	.22	.80	.07		16.54
Mount Hood	Columbia	1.01	.34	.02	.22	.03	.18	.10	.11	.21			.37				.95	1.11	1.40		1.22	2.98	1.52		.03	.12	.40	.05		1.08			14.55
Mountain Park	do	.91	2.70	.60	.39	T.	.25	.27	.52	.19	.80	T.	.04	.29				1.00	1.38	2.25	.41	.13	3.26	1.25	1.38	.26	T.	.24	1.70	1.80	.42		22.83
Mountain Ranch	Rogue			.60				.43	.55	.67	.83	.07		1.19	T.				.44	.96	2.44	1.08	2.20	1.82	.87	.06		.01		.08	.94		14.26
Musick	Umpqua	.42	.52	.02		.80		.20	.40	.80	1.60	.10	.50					1.00	2.20	2.30	.52	1.90	.52	.40	.42	.50	.20		.10				15.42
Newport	Coast	.53	2.54	1.02	.30	.48	.05	.65	1.54	.52	.25	.02	.05	.30				.30	1.09	1.22	.05	.76	2.68	.75	.19	.41	.52	.31	.26	1.20	.02		18.01
Nigger Flat	Malheur																														
Ochoco	Deschutes						.23	T.		T.	.29		.37		T.			.15	.25	T.	.70	3.15	1.35	T.	.17	T.	T.	.15				6.81
Ochoco Creek	do					.31	.80			.60	.19	.03		.53					.13		.47		1.74	.65	.90					T.	.15		4.43
Owyhee	Owyhee	.38					.05		.03					.11						.06	.03		.50	T.		.50					.13		1.79
Pendleton	Umatilla	.67	.05			.31	.07	.01		.12	.05		T.	.61	T.			.07	.02	.01	.23		.68	.34	.03			.12	.53		.26		3.58
Persist	Rogue	.12				.59	.16	.08	.40	.50	.62	.23		.31					.60	1.44	2.16	.86	3.05	2.50	.90	.09		.37		.50	.77		16.25
Pilot Rock	Umatilla	.04	.09			.23	.12	T.		.03	.01	T.		.57	.01			.02	.04	.01	.34	.01	.34	.24	.04	.03	T.	.01	.05		.04		2.27
Pompeii	Willamette	.74	1.77	.90	.40	.21	.25		.56	.29	.90	.10	.11	.54				.53	1.17	2.50	1.00	.11	5.44	2.09	1.91	.30	.15	.25	.92	.96	.65		24.75
Portland	do	1.24	1.27	.63	.40	.06	.07	.73	.60	.50	.17		.10	.27				.46	.70	1.12	.12	.86	.93	1.04	.01	T.	.03	.31	.03	.83			12.49
Port Orford	Coast																														
Post	Deschutes	.02				.20	.04		.08		.09	.11		.22					.04	.07	.25	.04	.52	.47	.04		T.	T.	.04		.64		2.27
Power House	Walla Walla	.17	.32		.03	.28				.27	.09	.04	.09	.90				T.	.20	.17	.52		.40	.46			.16		.22	T.	.37		4.69
Prineville	Deschutes					.38				.14			T.	.18								.85	.45	.25								2.25
Prospect	Rogue	.23				.78	.17	.05	.15	.50	.65	.25		.25	.03			.12	.40	1.90	2.91	1.05	3.50	2.87	.89	.05	.05	.20	.51	.10	.75		19.33
Range	John Day	.10			.40	.25			.25	.30	.20	.60	T.			T.	T.		T.	1.40	.05	1.15	.65	T.				.20				5.55
Ray Creek	Columbia		.11			.22								.70				.04		.33			.52	.47	.05				.07			2.61
Reston	Umpqua	.11	.03			.31	.01	.04	.65	1.00	1.25	.08		.27	T.			.06	.58	.77	1.28	.20	6.43	2.58	.71	.05	.15	.23	.22	.40	.28		18.31
Richland	Snake	.03					.16			.15		.17		.08					.02	.06		.57	.02			.03			.10		.14		1.53
Riverdale Ranch	Deschutes										.10		T.		T.				.20			.85	.89	.80	T.							2.84
Riverside	Malheur	.12	.05			.30				.35			.15					T.	.22	.10	.25	.30	.22	.12	.05							2.18
Rock Creek	Willamette	2.00	1.81	.47	.76	.23		.86	2.11	.88	.96		.04	T.				.50	1.13	1.89		.86	5.46	2.11	.82	.88	.42		.32	.50	.46		25.56
Roseburg	Umpqua	.04		T.	.35	.12		.13	.36	.72	.42	.02	.04	.21			.01	.11	.18	.50	.17	.78	3.01	.44	.20	.02	.02	.26		.55	.04		7.93
Rosland	Deschutes	.08	.01			.41	.05		.02	T.		.05		.50	.40				.10	.48	.74	.06	3.16	1.62	.28					.17			8.70
Salem	Willamette	.20	1.64	.40	.60	.20	.06	.44	.76	.44	.46	.02	.08	.28				.40	.32	.46	.38	.20	1.12	.48	.58	.12	.20	.22	.04	.40	.08		10.56
Seneca	Interior	.16				.33			T.	.10	.15		.06						T.	.16	.26	.08	.70	.62	.02		T.		.13		.02		2.73
Siskiyou	Rogue	.73				.27	.02	.01	.23	.32	.39	.10		.54	.15			.01	.16	.99	1.30	.71	1.46	1.33	.13	.05	.11	.20	.01	.01	.33		9.56
Sisters	Deschutes				.29			.02	.12	.06			.38						.02	.15	.44	.80	3.05	1.02	.43					.17	.06		7.01
Skyland	Willamette																														
Sparta	Snake																														
Stafford	Willamette	.63	2.11	.93	.39	.21	.01	.56	.81	.54	.46		.18	.20				.53	.88	1.51	.26	.21	2.46	.69	.43	.15	.25	.27	.17	1.05	.06		15.95
Starkey	Grande Ronde					.65			.05	.10	.15		.55						.40	T.			.80					T.	T.	.20			2.30
Summit	Willamette	.48	2.60	.75	.81	.21	.07	.61	1.62	.64	.59	.15	.06	.37				.31	.68	2.00	.70	.43	4.50	1.65	.83	.36	.56	.38	.20	1.45	.04		23.14
Summit Prairie	Deschutes					.12				.13	.18			.23					.12	.15		.31	2.05	.60	.14			.10	.13				4.26
Susanville	John Day	.08			.01	.32	.06			.11	.11	.15		.40	.02				T.	.02	.34	.03	1.40	.16	.05		.02	T.	.23		.13		3.64
Telocaset	Snake																				.62			.05	.04				.01				0.12
The Dalles	Columbia	.11	.18		.07	.10	.10	.05	.20	.03	.01			.25				.18	.28	.35	.11		1.81	.17	.38	T.		T.	.15	.02	T.		4.55
Tin Roof Cabin	Umatilla	.18	.03			.40	.24			.09	.30	.15	.07	.85							.42		1.33	.52			.05		.45		.72		5.80
Toledo	Coast	1.30	1.70	1.05	.50	.20		1.10	2.05	1.05	.55		.10	.75				.55	1.00	1.86	.55	.45	2.25	1.40	.80	.50	.50	.50	.20	1.60	.10		22.51
Trask	do	2.65	3.80	1.90	.35	1.00			1.79	1.10	.30	.40	.19					1.90	2.10	3.00	2.28	2.40	3.60	3.65	3.00	1.46		1.32	1.50	4.55	1.72		46.16
Umatilla	Columbia	.02			.44		T.	T.			T.		.14	T.		T.		.05	.09	.27			.67	.02				.07					1.77
Unity	Snake	.12	T.									.29		.19	T.				T.	.23	.38	T.	.84	.52	.04				T.		.10		2.71
Vale	Malheur	.11					.07		.06											.10			.62		.02	.13					.10		1.21
Van	do	1.00					.04		.28		T.	T.		.30						.10			.98		T.		T.						2.70
Wallace Orchard	Willamette	.32	1.91	.60	.67	.13	.04	.38	.86	.55	.59	.01	.05	.25				.38	.48	.83	.20	.26	1.35	.55	.45	.19	.09	.20	.03	.93	.01		12.31
Wallowa	Grande Ronde	.44	.07			.32	.04	.02		.45	.12	.09	.20						.18	.05	.69		.91	.94	.09	T.	T.		.22	.02	.17		5.02
Walloupa	do	.43	.12	.02	.02	.30	.10	T.		.35	.16	.02		.12					.43	.66	.69		1.59	.88	.30				.07	.02	.26		6.52
Wamic	Deschutes	.80	.50		.40			.12	.14	.80				.25				.80	.25	.25	.20		2.51	.50	.44					.24	T.		7.90
Warmsprings	do				.15	.20			.05									.03			.50		1.31	.46	.21		.05					2.96
Wasco	Columbia	.10	.28	.02		.14	.04	.07	.08		.12			.15				.10	.17	.16	.10	.50	1.08	.30	.43			.16	.03	.10			4.13
Welches	Umatilla	1.80	3.05	1.08	.70	.40	.43	.20	.33	.40	.80	.18	.02	.60				.98	1.20	2.00	1.03	1.33	4.03	1.10	1.15	.30	.23	.10	1.47	1.50	.53		26.94
Wenaha Springs	do																														
Weston	Walla Walla	.35	.20	T.	.05	.35	.12	T.		.20	.08	.10	.02	.60				.05	.10	.10	.45			.65	.15	T.	T.	T.	T.	.05	.30		3.92
Willamina	Willamette																														
Williams	Rogue					.23		.12	.61	.52	.34			.52				2.10	1.56	1.61	2.21	3.06	3.10	.41	.04		.01		.26	.35		17.05

TABLE 3.—*Maximum and minimum temperatures at selected stations for November, 1909. District No. 12, Columbia Valley.*

Date.	Montana.						Idaho.																			
	Kalispell.		Missoula.		Afton, Wyo.		Boise.		Bonners Ferry.		Hotspring.		Lewiston.		Mackay.		Meadows.		Pocatello.		Salmon.		Shoshone.		Vernon.		Wallace.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	47	35	47	36	.....	.....	58	44	41	30	60	43	55	43	50	24	42	32	51	38	46	39	55	36	43	34	45	35
2	54	38	56	41	.....	.....	68	55	54	35	72	44	56	49	59	33	58	40	64	41	69	48	63	37	60	39	53	38
3	58	44	67	46	.....	.....	68	43	50	40	72	36	64	50	58	30	62	36	68	38	72	44	65	33	61	31	51	41
4	44	41	63	41	.....	.....	69	42	46	39	70	30	60	50	59	29	60	31	68	38	58	26	63	30	61	29	50	44
5	46	40	54	31	.....	.....	64	42	55	39	68	32	55	44	59	25	53	28	65	36	61	21	62	30	56	28	46	39
6	46	32	50	38	.....	.....	51	38	46	28	70	30	53	38	53	31	53	32	53	33	56	35	49	37	41	29	48	34
7	43	26	46	23	.....	.....	60	42	46	28	72	28	49	35	47	17	51	21	53	28	50	16	54	25	55	24	50	27
8	51	33	53	26	.....	.....	62	44	45	25	70	30	52	36	52	23	54	26	60	37	57	20	58	37	55	30	50	33
9	42	37	45	34	.....	.....	49	40	44	30	68	32	50	40	43	28	49	38	60	35	56	25	49	39	46	31	43	38
10	41	32	42	32	.....	.....	45	36	46	29	70	34	50	40	40	17	41	30	41	32	47	27	41	31	39	30	40	33
11	42	31	38	29	.....	.....	43	33	44	30	44	33	48	39	42	15	39	31	42	26	43	27	40	29	36	21	41	33
12	37	25	40	30	.....	.....	40	28	38	25	46	28	45	36	38	15	34	18	35	22	42	26	31	24	38	12	38	30
13	24	12	27	17	.....	.....	35	32	32	15	44	31	43	30	35	17	33	20	37	28	34	23	34	26	30	21	32	22
14	23	6	24	10	.....	.....	36	24	38	9	42	30	36	22	25	10	31	18	29	22	28	12	33	25	26	15	24	15
15	26	7	26	5	.....	.....	38	21	34	9	40	21	35	20	22	6	31	3	27	22	27	3	31	18	26	10	29	9
16	30	16	35	10	.....	.....	40	22	36	19	42	18	39	23	32	6	35	8	40	19	34	4	35	14	29	19	31	11
17	30	24	42	24	.....	.....	43	27	35	22	46	28	49	36	22	6	35	18	42	16	41	19	40	21	36	12	41	28
18	46	30	49	33	.....	.....	57	31	47	30	54	36	56	41	31	10	35	30	50	28	49	25	47	29	41	20	46	34
19	50	35	55	43	.....	.....	54	45	54	22	55	45	56	44	40	12	41	33	52	37	50	35	44	37	40	31	48	40
20	42	28	45	32	.....	.....	56	43	45	28	58	46	54	36	40	20	45	35	52	40	46	35	49	41	48	37	48	31
21	39	27	39	28	.....	.....	47	42	38	25	52	45	47	34	34	22	39	26	44	32	36	21	44	35	41	31	35	28
22	41	30	47	30	.....	.....	57	44	36	30	61	41	67	40	43	20	43	32	56	38	36	26	49	38	46	31	52	31
23	53	40	51	42	.....	.....	63	51	56	32	69	55	65	49	39	32	52	42	58	46	59	34	53	45	56	43	54	46
24	48	32	45	38	.....	.....	55	45	56	38	67	51	54	38	40	32	49	43	54	43	54	33	55	42	51	41	52	32
25	35	29	35	28	.....	.....	46	40	41	26	64	42	45	36	50	32	43	35	45	36	40	32	46	39	45	32	37	28
26	39	25	35	26	.....	.....	41	32	38	23	48	37	48	32	42	26	37	29	36	29	40	30	40	30	38	31	34	26
27	39	22	39	22	.....	.....	41	27	37	23	44	24	46	28	44	18	33	15	35	20	35	18	36	22	31	11	37	28
28	38	29	44	22	.....	.....	47	34	44	29	46	26	49	37	45	15	37	26	37	18	44	19	38	23	32	5	44	29
29	52	37	45	21	.....	.....	45	32	47	40	51	30	56	40	49	29	43	32	41	21	40	23	45	25	39	9	52	38
30	51	30	50	36	.....	.....	50	34	44	30	53	38	52	30	50	18	42	30	39	30	48	30	43	31	34	15	45	33
31																												
Mns	41.9	29.1	44.5	29.1	.....	.....	50.9	37.1	43.8	27.6	57.3	34.8	51.2	37.2	42.8	20.3	43.3	27.9	47.8	31.0	46.6	25.9	46.4	31.0	42.7	25.1	43.2	31.1

Date.	Washington.																											
	Aberdeen.		Blaine.		Colville.		Kosmos.		Lakeside.		North Head.		North Yakima.		Odessa		Port Crescent.		Seattle.		Sixprong.		Spokane		Tacoma.		Tatoosh Island.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min.	Max.	Min.
1	55	42	50	44	42	29	45	36	44	35	55	49	44	34	44	31	49	38	56	44	50	38	51	36	52	43	55	45
2	58	45	52	43	55	38	50	42	48	37	54	53	61	40	54	34	52	46	57	53	56	43	56	50	57	52	54	41
3	56	46	55	47	60	48	54	47	58	41	53	49	59	46	57	45	53	38	54	49	66	49	58	49	55	49	55	45
3	51	44	49	36	53	38	49	44	50	43	49	46	52	45	54	45	47	36	49	45	60	47	51	45	49	44	49	44
5	48	39	51	35	48	40	44	40	52	40	47	44	51	44	47	41	47	31	51	43	57	44	48	40	52	42	48	42
6	53	37	51	40	42	36	44	36	50	33	52	42	54	31	51	31	49	31	54	43	53	40	46	34	55	42	49	41
7	54	43	54	42	37	26	50	38	42	37	52	44	47	34	44	30	50	38	53	45	56	35	42	34	54	43	51	42
8	54	44	53	43	44	34	50	43	45	38	54	46	48	39	52	40	51	40	55	45	49	39	48	36	57	45	53	45
9	53	43	51	43	42	34	52	39	48	42	52	45	52	37	50	38	49	38	50	45	54	37	48	40	52	43	49	45
10	48	41	47	43	42	36	47	37	45	37	49	43	47	30	49	30	47	39	46	42	47	34	47	38	47	42	50	45
11	54	40	46	37	44	33	49	37	48	38	50	40	51	36	52	32	49	32	48	42	47	34	45	32	49	39	51	44
12	48	39	44	40	33	22	40	37	42	32	48	41	42	31	42	26	48	35	46	39	45	32	33	29	47	39	48	43
13	48	29	40	30	35	23	41	31	35	30	45	36	36	33	34	24	41	33	42	34	40	30	31	23	42	38	45	39
14	45	26	41	23	33	13	33	23	34	24	44	33	38	22	35	20	39	25	41	32	35	24	29	18	42	30	41	37
15	44	24	41	20	33	10	41	18	32	19	45	33	35	13	35	11	40	23	42	29	29	10	30	16	43	25	43	37
16	45	24	40	25	31	15	36	19	33	25	46	37	31	14	35	14	40	27	41	29	28	12	35	20	39	26	42	39
17	53	35	44	35	30	21	41	32	32	27	52	40	31	26	35	25	46	36	49	39	40	24	40	31	48	35	53	38
18	57	51	57	40	47	30	50	40	36	30	54	51	44	29	47	30	54	43	58	49	43	23	52	36	59	50	54	48
19	52	41	49	44	47	34	50	39	46	34	52	44	47	29	46	31	50	37	52	43	54	34	49	37	52	42	48	42
20	46	42	48	37	44	22	42	36	48	30	51	43	51	27	50	30	46	37	48	42	50	38	45	34	48	42	48	41
21	48	38	46	37	44	23	44	39	40	30	50	42	47	28	45	29	44	37	46	42	49	34	43	32	47	41	45	40
22	57	43	54	38	46	22	56	40	43	32	55	50	56	36	55	37	58	39	58	43	60	39	57	35	59	43	53	42
23	55	45	55	46	57	35	56	48	57	36	52	45	62	48	59	45	53	42	56	45	62	49	57	49	57	47	52	42
24	47	39	46	39	58	37	51	38	51	39	50	42	57	36	53	35	45	34	47	39	59	36	49	38	47	39	46	39
25	44	34	43	38	47	26	40	34	40	28	45	39	46	25	57	32	40	32	42	37	54	37	45	31	42	35	42	35
26	43	32	43	35	40	22	37	32	38	27	47	36	41	22	56	32	44	31	44	36	49	30	40	30	44	32	46	36
27	54	42	46	38	39	27	39	31	38	33	50	42	35	24	57	34	47	35	45	40	43	29	42	32	46	40	52	42
28	50	38	54	40	54	32	47	37	41	32	52	50	52	33	55	31	58	46	59	43	55	34	49	35	60	44	52	49
29	55	38	51	43	53	32	59	42	51	36	53	41	61	50	37	30	49	36	57	43	62	35	53	45	60	39	49	43
30	48	34	44	36	52	29	47	34	51	35	48	40	51	34	55	27	46	33	45	39	56	36	45	32	45	37	46	38
31																												
Mns	50.8	38.6	48.2	37.9	44.4	28.9	46.1	36.3	43.9	33.3	50.2	42.9	47.6	32.5	48.1	31.3	47.7	35.6	49.7	41.3	50.3	34.2	45.5	34.6	50.2	40.3	49.0	42.0

TABLE 3.—*Maximum and minimum temperatures at selected stations for November, 1909. District No. 12*—Continued.

Date.	Walla Walla, Wash.		Oregon.																					
			Ashland.		Baker City.		Eugene.		Gold Beach.		Hermiston.		Marshfield.		Portland.		Prineville.		Roseburg.		The Dalles.		Vale.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	66	43	60	47	50	36	55	45	60	51	59	43	60	48	60	46	58	35	61	48	49	44	51	39
2	67	54	70	50	60	50	61	43	65	54	63	44	66	58	62	57	64	55	71	50	62	45	70	41
3	67	54	58	45	66	42	67	52	61	50	72	48	65	56	60	50	65	39	69	46	62	53	67	33
4	54	48	59	43	64	38	66	48	58	48	57	50	54	50	51	46	60	32	59	47	58	50	62	30
5	51	43	53	40	54	38	51	42	55	44	50	41	48	43	53	45	45	34	51	41	55	46	55	29
6	54	40	53	29	48	32	48	36	56	37	59	36	58	35	55	41	56	21	57	36	54	34	56	33
7	58	30	54	46	52	31	57	39	58	48	53	30	57	45	55	44	56	34	57	41	50	39	61	22
8	56	39	53	43	52	40	56	44	60	47	50	37	51	49	54	47	50	42	56	45	48	42	54	25
9	54	45	52	38	48	37	50	44	52	46	58	39	51	43	51	43	50	35	49	40	52	43	54	41
10	51	42	46	33	41	32	50	41	53	43	52	36	52	42	51	41	47	30	49	40	49	36	48	33
11	44	36	46	35	40	29	50	38	54	37	49	36	52	38	46	37	40	29	48	32	52	33	46	26
12	45	38	41	26	39	23	47	33	54	36	47	28	47	31	43	38	39	21	43	32	47	31	47	20
13	38	28	41	32	34	24	43	35	52	42	35	30	50	42	44	38	38	26	46	37	44	34	41	32
14	28	20	44	25	26	15	46	26	55	30	33	19	52	35	42	32	26	18	43	29	38	26	39	30
15	32	17	45	26	31	7	44	25	52	29	31	6	58	29	45	28	35	5	49	29	34	17	38	11
16	30	16	47	25	35	11	50	28	57	35	29	8	55	30	41	30	38	11	44	27	33	18	39	10
17	32	25	53	34	39	27	45	31	60	50	33	9	59	42	50	35	51	27	62	39	36	29	41	16
18	63	31	60	41	45	35	58	42	61	52	55	25	58	54	60	47	58	47	60	46	41	33	42	26
19	59	45	54	46	48	40	57	52	60	54	62	30	56	54	54	45	.....	42	57	49	52	37	52	34
20	53	41	53	48	46	33	57	39	60	51	55	41	52	48	53	43	.....	40	55	46	53	41	57	45
21	49	39	50	41	42	30	52	46	58	49	53	31	54	46	48	41	.....	45	59	46	46	30	49	32
22	66	49	67	49	53	35	61	45	60	54	67	35	60	52	63	47	.....	43	61	56	65	40	63	42
23	64	52	64	52	58	47	61	56	62	55	65	41	58	57	62	52	.....	40	62	51	66	49	65	49
24	56	42	60	42	50	36	60	44	50	46	54	41	54	48	52	41	.....	32	52	39	59	43	58	43
25	50	37	45	35	40	32	51	36	58	39	55	32	48	39	47	38	.....	22	47	35	46	30	51	38
26	46	34	41	31	38	26	45	35	52	34	47	23	47	36	44	38	.....	23	47	32	40	27	45	28
27	50	34	41	27	37	21	46	35	50	36	47	23	47	33	52	39	.....	23	47	30	38	27	41	18
28	60	50	53	33	42	31	51	37	61	46	59	28	60	47	60	52	.....	38	59	46	45	35	48	31
29	66	45	54	36	44	35	59	49	58	55	69	38	59	52	62	43	.....	45	61	46	56	42	44	24
30	46	37	48	42	39	27	62	38	60	42	52	36	53	44	50	38	.....	48	48	41	57	39	52	34
31																								
Mean	51.8	38.5	52.2	38.0	45.4	31.3	53.5	40.3	57.0	44.7	52.3	32.1	54.7	44.2	52.3	42.1	48.7[1]	32.7	54.3	40.7	49.6	36.4	51.2	30.5

PAPERS ON CLIMATOLOGY IN RELATION TO AGRICULTURE, TRANSPORTATION, WATER RESOURCES, ETC.

IMPORTANT PROBLEMS IN CLIMATOLOGY.

By Prof. FRANK H. BIGELOW.

INTRODUCTION.

The data furnished by climatology, including the temperature, precipitation, and wind at numerous points in the United States, is intended to bring out the features belonging to local conditions, as distinct from the more general meteorological features of the United States. While these two subjects are in some respects too closely interwoven to be distinguishable, they yet hold something of the relations of cause and effect, the climatological conditions at any station being the result of the general circulation of the atmosphere as modified by the distribution of ocean and land areas, and the topography of mountain ranges and plains in their relations to the prevailing winds. The data of climatology are, therefore, more commonly regarded as practical matters, while meteorology is considered as a somewhat theoretical, or speculative subject. This view of climatology as practical is strengthened by the facts that the farmer, the transporter, the manufacturer, and the consumer see in the prevailing temperature and rainfall the sources of these important weather conditions, paying little attention to the greater problems of the circulating currents that produce them. Furthermore, the meteorological problems are uniformly of a more complicated and difficult type than the climatological problems, so that it is inevitable that they should be studied only by a small class of specialists who are adapted by their training to such work. In recent years the development of interest in water resources, at the hands of engineers engaged in irrigation and power plants, by foresters concerned with the growth of trees in various habitats as regulated by temperature and precipitation, by the needs of farming in its intensive features, the greater value of water as regards its use in soils, its destructive power in soil erosion and transportation, its importance in the navigation of streams, and its destroying capacity in times of floods, all these interests have combined to place upon climatology a series of new questions that demand scientific attention.

In order to meet this demand more fully, the Chief of the Weather Bureau has separated its current publications into two general parts, placing climatology and its problems in the new MONTHLY WEATHER REVIEW, and meteorology and its problems in the Mount Weather Quarterly Bulletin. Also, a new monthly, to be called the Hydrological Journal, will be issued to collect the data of the river stages and discharges as furnished by the Weather Bureau, the Geological Survey, the Reclamation Service, and the engineers generally. It will, of course be impossible to keep the border lines of these three lines of work entirely distinct because they essentially overlap, and the solution of a problem in one of them is only possible by borrowing from the others, and indeed from science generally. For example, the subject of evaporation begins in climatology with the water areas produced by precipitation, its laws can be discovered only by theories derived from thermodynamics and the kinetic theory of gases, and it goes over into meteorology which contains the laws of the circulation of currents bearing the vapors of evaporation to form clouds and rain or snow in very distant places.

In planning and discussing these new methods of publishing the data collected by observers in the United States, it appears that many persons have only a vague idea of the nature of the problems that ought to be discussed in the new MONTHLY WEATHER REVIEW, and it is proposed to mention some of the subjects in a very general way that ought to have the attention of our correspondents.

TEMPERATURE.

In Bulletin S, Temperatures and Vapor Tensions of the United States, 1909, are given the mean monthly and annual values of these quantities reduced to homogeneous systems. There are 64 stations having records from 31 to 33 years, 14 with records from 26 to 30 years, 10 with records from 21 to 25 years, 20 with records from 16 to 20 years. A method is given for reducing stations having short records to the equivalent of a long record by using the data contained in this report. In temperature records the observations of 25 to 33 years are enough to give reliable normals and departures, so that these standard values will not require modification for a long while to come. In climatology there are other short-record stations in each State that ought to be reduced to the long-record standard, in order to render more harmonious and regular the systems of monthly departures used in practical matters. By subtracting the mean monthly normals from the current normal of the successive years, a series of departures can be obtained for a large number of stations for the given month and year. If these departures are entered on a base map the variation of the temperature from the normal system of long record can readily be built up, and if lines of equal departure are drawn a map will be formed like Chart IV in the July, 1909, MONTHLY WEATHER REVIEW. Similar departure charts have been constructed from January, 1873, to June, 1909, for each month and year, making $36 \times 13 + 6 = 474$ charts. The series will be continued henceforth in the regular MONTHLY WEATHER REVIEW, thus making these monthly charts continuous from January, 1873. Preparations are being made to print these charts on the stations by the chalk plate process, so that all stations and students interested can have working copies. It is perceived that by interpolation the departures at any point on the map can be found for a series of years based upon the long-record system, and by comparing with the corresponding departures at a short-record station, the correction can easily be found for reducing the latter to the long-record homogeneous system. In this way the important cooperative stations of the United States will be reduced to a homogeneous system, and thus improve our departure columns in Table I of the MONTHLY WEATHER REVIEW.

NORMALS, CONSECUTIVE MEANS, DEPARTURES, AND RESIDUALS.

Unfortunately, it is not possible to secure a true normal of precipitation in as short a record as in the case of the temperature. An inspection of the charts and tables in Abstract of Data, No. 3, The Annual Precipitation of the United States for the Years 1872 to 1907, shows how wide the swing may be away from the mean value for a long series of years. It becomes necessary to make a distinction between departures and residuals. When the variation from a long-record mean is persistent in one direction for several years it is proper to compute the consecutive means for the years taken in short groups, as five for example, stepping along in consecutive groups. The value of a current year minus the normal gives the departure; the value of the current year minus the consecutive mean gives the residual. If the normal and consecutive mean agree then the departure is equal to the residual. This is likely to be the case in southern California and the Southwest; the residuals differ very much from the departures in the east Gulf States and in other districts. It is necessary to use this distinction whenever studies are made on the secular variation of the climate. There are other precautions which must be made when the variations in one country are compared with another. Thus, for long records the phases of one cycle can not be compared with another unless reduced to

a definite period before correlation. The 11-year cycle of solar action with its four subordinate phases ranges from 8 years to 14 years, and it is evident that a set of departures which are jumbled together in a table without classification for period will simply cut themselves to zero in a numerical summation, and produce a negative result due merely to faulty computation. When stations in the Tropics are compared with stations in the temperate zones the fact of inversion in the system of departures and residuals must be fully reckoned with in the construction of comparative tables. This inversion effect is due to the general circulation of the atmosphere as impelled by variations of the solar radiation.

PRECIPITATION.

It may be noted that the departures of temperature and of precipitation are likely to be of opposite signs. An example may be found by comparing Charts IV and V, July, 1909, MONTHLY WEATHER REVIEW, where the areas of defective temperatures agree approximately with the areas of excess of rainfall. It becomes evident, therefore, that the ability to forecast monthly or seasonal departures of temperature would carry with it an indication of the probable rainfall for a given region. The ultimate purpose of securing departure systems is to discover a method of forecasts for weather and climatic conditions. This problem is exceeding complex and it will probably take much study to accomplish the desired purpose. Our observations of solar data are meager and crude, and our departures and residuals have been too full of bad workmanship to permit them to be used in this comparison. The International Solar Commission is gradually acquiring homogeneous data and the problem is being carefully studied in many quarters of the world.

The proper catchment of rain and snow, and the measurement in water equivalent, has always been a perplexing question. The ordinary 8-inch rain gage, with funnel, works well enough for rain, where the action of gravitation makes the drops fall quite vertically into the measuring circle of the gage, but it is not satisfactory in the case of falling snowflakes where the horizontal wind effect overcomes the vertical gravitation effect. If rain and snow fall vertically any proper apparatus will work for catching it; if the rain and snow are blown horizontally no form of apparatus is free from difficulties. Snow is transported horizontally by wind currents to such an extent that it becomes of primary importance to separate falling snow from drifting snow. For this purpose several experiment stations for comparative observations have been established in the Rocky Mountain and Pacific States. At each of these stations there have been set up plain and louvered snow bins, 10-foot platforms, 10-inch standpipes 10 feet high, and simple vertical snow scales divided into feet and tenths. The bins are cubical boxes, 5 feet on a side, set on a frame so that the top is 10 feet above the ground, and they are provided with a short ladder and door for access. The louvered bins have plain louvers on the lower half of the inside to control the swirling eddy currents, and a semicylindrical wire screen louver on the outside along the top to control the direction of the outside horizontal currents around the mouth of the bin. It is not only necessary to separate the horizontal component from the vertical component of the snow as it falls, but to hold the snow in the bin after it has once fallen within it. The curved louvers are adapted to the former purpose and the plain louvers to the latter. Snow usually falls during a comparatively light wind, but this is followed by high winds which blow it about. Our experiments so far indicate that the platform is swept or filled by mere drift so much as to be useless; the standpipe and the short rain gage can not catch a fair amount in the narrow orifice; the snow bins are by far the most promising mode of attacking this snowfall problem yet tried. If a fair catch of snow can be guided into and held in the bin it will be easy to accumulate this in reservoirs containing salt to produce water, and oil to prevent evaporation. Such a combination will make an apparatus for storing the snow and water falling in remote places, as in the mountains, which can be visited only at intervals for the record. A series of such bins in the mountains will enable us to compute the general snowfall conditions before transportation occurs by means of wind and stream flow, and from these data it will be possible to build up a system of local relations between the fall of the season and the flow in the streams heading in the snows. This is a large and difficult problem and will require much skill for its solution.

WIND AND TOPOGRAPHY.

The general rain and snowfall of a region depends upon its relation to the mountains, plains, and ocean areas, because these are connected with the general circulation of the atmosphere. Local precipitation is largely controlled by these terms, and they should be thoroughly and systematically analyzed. The existence or nonexistence of forests and soil covering depends upon the temperature and relative moisture of prevailing winds in the given locality. Should these change decidedly the forests will follow, in order to conform to the dominating climatic conditions. At one time the winds must have been entirely different from what they now are in Arizona, New Mexico, and the Southwest, as testified by the gigantic petrified forest trees there found. It follows that reforestation of nude country should carefully consider the prevailing winds and their probable moisture contents before spending money in that direction. Old forests can be replaced if similar climatic conditions continue to exist, but not otherwise.

The drying and withering of vegetation depends upon the wind action, and it may be very restricted in its area as modified by the topography of a mountainous country. The entire question of evaporation of water from soils and plants, as well as the rate of transpiration, is closely connected with the prevailing wind action, and much work remains to be done in this direction. The Forest Service has recently established an experimental laboratory at the Coconino Forest, 12 miles from Flagstaff, N. Mex., and another at Fremont, Colo., and it is proposed to carry on proper researches in these problems at other stations. The Weather Bureau is cooperating in this matter by furnishing apparatus and advice so far as practicable.

RUN-OFF, SEEPAGE, DISCHARGES, FLOODS, LAG, AND FORECASTS.

Taking a large mountainous region, having a rough surface topography, when rain or snow falls on the area it is soon collected into the gulches, in streams, and rivers which carry off all that escapes the prevailing evaporation. Since observations are not usually well distributed in such a country, being for the greater part limited to the low levels, it is a difficult problem to connect together the total precipitation and the run-off. If the vertical component of the precipitation can be separated in the case of snow from the horizontal drift by means of the snow bins, then it can be assumed that the vertical lines drawn upward from each station will pierce an ideal plane drawn horizontally just above the mountain tops. A number of snow falls at points through this plane will give the data for integrating the total snowfall through this plane. When the vertical loss by evaporation is once measured and computed approximately, the remaining snowfall, reduced to water equivalent, is the total that accumulates in deep drifts, or runs off promptly in the streams. No work of this kind has been accomplished in the United States, but it is greatly needed for engineering and irrigation uses.

The relation between the rapidity of the *run-off* or overground flow, and of *seepage* or underground flow, and the nature of control by the condition of the soil, by the prevalence of forest *or other* covering, is a subject for further study. The *discharges* of the streams take account of the volume of water passing a given cross section area in the unit of time, and it is measured

by the stage or height of the stream together with the velocity of the current. The discharge is usually less on a rising stage than it is on a falling stage. *Floods* represent the temporary accumulations of water upon the total area of the watershed of a stream washing down in a long wave through the river channels. Now, there is an interval of time elapsing between that of precipitation and the passage of the water in the streams. Instances are known where the heavy precipitation of one year in the mountains as snow will not reach the streams at a considerable distance till a year has elapsed. That is, the amount of precipitation in any year may be made the means of forecasting the condition of the streams a year later. In other localities the lag is only a few months or weeks, but such facts can be learned only by a systematic correlation of the data of precipitation and the discharges in streams. The dates of disappearance of the surface snow in the open country, *the ravines*, and in the forest should be systematically recorded. The seepage waters, derived from the surface waters entering the soil, have a very considerable lag behind the overground waters in reaching the streams. The *rises* due to underground waters are likely to follow the floods from overground waters by several weeks or even months. The evaporation of water from the soil amounts to an enormous quantity in many places. In the Owens Valley, California, the waters of the Sierra Nevadas hardly reach the Owens River in the neighborhood of Independence, though the distance from the rampart to the river is less than 10 miles and the mountain streams are vigorous on account of slow seepage and rapid evaporation in the meadows. Every locality has such problems of lag and forecast that can be worked out only by observation.

EVAPORATION.

In the summer of 1907 the United States Weather Bureau began a systematic research into the laws of evaporation, with Prof. F. H. Bigelow in charge of the work. A preliminary campaign at Reno, Nev., July to September, 1907, was supplemented by some observations at Indio and Mecca, Cal., 1908, while waiting the necessary Congressional authority to proceed to the main work of the investigation in 1909. Observations were opened in March, 1909, at Indio, Mecca, Brawley, and Mammoth in the neighborhood of the Salton Sea, and four strong towers were built near the Salt Creek Bridge, one on the land, one in 25 feet of water at the bridge, one in 40 feet of water about three-fourths of a mile out, and one in 55 feet of water 1½ miles out in the Salton Sea. The towers project 45 feet above the water and are heavy enough to stand in the severe storms without much swaying. Simultaneously stations were established in different parts of the country in cooperation with the Reclamation Service and the Geological Survey, and records have been received from Boise, Hermiston, North Yakima, Klamath Falls, Fallon, Lake Tahoe, Phoenix, Engle, Carlsbad, Mitchell, Rupert, California, Ohio, and Birmingham, Ala. These observations are being discussed and they disclosed the problems to be solved in a very satisfactory manner. It may be said generally, that the results obtained first at Reno, Nev., have been fully confirmed. The observations have been executed by numerous observers, some of them being very skillful in the use of the apparatus, and they have been made with different classes of instruments. The difficulties that appeared at Reno are inherent in the phenomena of evaporation, which is very complex, and they can not be explained by the efficiency of the observers or the apparatus. Beginning with the old Dalton formula, for the unit of time,

$$E_0 = C\,(e_s - e_d)\,(1 + Aw).$$

The correlative formula is:

$$E_0 = C\,(e_t - e_d)\,(1 + Aw).$$

where e_t is the vapor pressure at the dry air temperature, e_s that at the water surface temperature, e_d that at the dew-point temperature. Each of these formulas have been amended in our computations to their respective improvement, but neither of them meet the requirements of the problem. To amalgamate them in the form,

$$E_0 = C\,(e_t + e_s - 2e_d)\,(1 + Aw).$$

is to produce a mixed case inferior to each of the components. The formula first used at Reno has been fully verified as the most effective, and its relation to the Dalton formula discovered. Unfortunately, evaporation is a more complex phenomenon than is indicated by these simple forms. The coefficient C is not constant during the day, for two or three reasons; also, it moves in an annual cycle of considerable amplitude. The evidence is, that we are dealing with a hyperbolic function, $C = xy$, which implies products and ratios rather than simple differences, and the relations between e_t, e_s, e_d are by no means simplex, but complex. At the Salton Sea the towers in the heat of summer penetrate nearly through the vapor blanket, and the evaporation from bottom to top proceeds by stages which give fine examples of the variations between these terms. Similar coefficients emerge from the computations in different parts of the United States, and it is quite certain that the formulas deduced at the Salton Sea will be applicable in all climates, that is in all variations of temperature and vapor pressure. The wind term is likewise complex, and the velocity changes rapidly from the ground to 10 feet above it. The size and location of the evaporating pans, also, have important effects, because of the conduction of heat in the metal to the water and to the ground. The amount of change of the water temperature, that is the rise of temperature in the forenoon and fall in the afternoon, are probably functions of the rate of surface evaporation. The cycle of a year's observation at the Salt Creek Bridge will be completed in June, 1910.

CIRCULATION.

The prevailing circulation of the atmosphere controls the resulting weather conditions, that is the climatology. If the prevailing winds are directed in certain directions for a series of months or years the climatology follows them. There are strange anomalies occurring in this matter of general circulation whereby the winds seem to change their habitat, if one can so describe the conditions, and this entails a whole cycle of changed circumstances. Unfortunately, meteorology has made so little progress in the study of the general circulation that the subject is little better than chaotic in its nature. The observations of temperature, wind vectors, and vapor contents in the higher strata of the atmosphere have only become available for study during the last 10 years. Even this meager data is enough to show that the theories of the general circulation as discussed by Ferrel, Oberbeck, and other meteorologists, are entirely incapable of taking satisfactory account of the facts. Bigelow showed by the cloud observations of 1897–98 that Ferrel's canal theory must be modified, there being no important flow of air from the equator to the poles in the upper levels, with return currents in the lower levels, and a neutral plain separating them. Rather, there are leakage currents from the Tropics into the temperate zones in the lower levels, producing the large centers of action, and the smaller wandering cyclonic and anticyclonic circulations. A fairly complete discussion of the vortex motions in the tornadoes, hurricanes, ocean, and land cyclones has been published in the MONTHLY WEATHER REVIEW, showing that a large amount of work must yet be expended on the local land and ocean cyclones.

More recent unpublished studies on the general circulation have made important progress in this subject. The observed distribution of temperatures in all levels up to 13,000–16,000 meters has been correlated in all latitudes from the equator to the poles; a method of computing the corresponding pressures, densities, gradients of temperature and pressure, the

wind velocity and air coefficients has been worked out, which is already very promising. This takes account of the vertical convection upward in the Tropics, downward in the high pressure belt, together with the resulting trade winds; the horizontal overflow, somewhat greater in middle latitudes in the upper levels than in the lower levels, and its relation to the great eastward drift can be fully discussed; the variations of temperature in longitude and the effect in breaking up the general circulation by means of leakage currents can be deduced by the extension of the method. The application of such data to many localities is a work that will cost much labor, but the result will be to change climatology from a merely statistical subject of normals and departures into one of scientific procedure. If the laws of the modification of the local circulations can be worked out, there will follow the possibility of arriving at the laws of seasonal forecasts as regards the temperature and rainfall of special regions. It is entirely probable that the proper scientific approach to the problem of seasonal forecasts is to be along this line, however, it will require the labors of many students to do the necessary work of computation and discussion. It, also, seems quite likely that as soon as students more clearly perceive the nature of this great problem, the number of workers will increase.

RADIATION.

If the circulation of the earth's atmosphere is the cause of the local distributions of temperature and precipitation observed in climatology, we know that the solar radiation is the immediate source of the energy that drives the circulation. The subject here becomes complicated because the study of radiation in any easy way is hindered by the presence of aqueous vapor in the atmosphere considered as an absorbing layer of gases. The incoming radiation suffers three principal depletions: (1) by scattering and deflection upon the atoms, molecules, and dust or ice particles of the air, (2) by the absorption of short wave-length radiation chiefly in the outer or isothermal layer, (3) by the absorption of the somewhat longer wave lengths and other occasional long wave lengths in the lower aqueous vapors. In order to suitably observe solar radiation, it follows that regions of dry air, and air free from dust, are most advantageous. The atmosphere over the eastern districts of the United States is loaded with aqueous vapor and transported from the Gulf of Mexico, while the extreme southwestern districts, New Mexico, Arizona, and southern California are relatively free from vapor, being shielded by the mountain ranges of the Pacific coast. Some high-level stations and some desert stations in the Southwest are peculiarly adapted to study solar radiation. There are several lines of research which indicate that the solar radiation is variable, and it is of primary importance to establish a series of long-continued homogeneous radiation observations for this purpose. The irrigated district in the Imperial Valley, having very clear, cloudless skies, and comparatively low wind velocity, is a most promising place for a station. A suitable equipment for the climatological station at Brawley, Cal., should be considered in this connection.

SOLAR PHYSICS.

Numerous answers to questions in solar physics will probably follow the solution of similar problems for the earth's atmosphere. The relations between the temperature distribution and the velocity of the air in different levels follows similar laws, through the action of gravitation upon the resulting densities of the air masses. Apparently, by the observations on the surface, the solar disk is at the same temperature in all latitudes, and yet the large change in the velocity of rotation of the gaseous envelope in different latitudes, 26.70 days at the equator and 31.00 days at the poles for the photosphere, 26.00 days at the equator and 29.00 days at the poles for the upper chromosphere, must be the result of temperature distributions in order to conform to the laws of general motion. The outer gaseous layers of the earth's atmosphere are nearly isothermal, but the lower ones have a well-known decrease of temperature from the equator to the poles. Similar deep-seated changes in temperature are to be expected on the sun, but the two systems are probably inverse to one another.

The incoming radiation is accompanied by magnetic and electrical effects. If corpuscles are expelled by the sun and transported to the earth in light waves, they should make a disturbance of the diurnal magnetic field centered about the solar meridian, by every analogy, if their energy is expended within the outer layers. The diurnal magnetic variations are evidently distributed about the diurnal temperature changes in two entirely parallel systems centered at about 2 o'clock in the afternoon. Since this temperature distribution is confined to the lower layers of the atmosphere it should follow that the incoming solar radiation has diurnal magnetic effects, controlled by the lower rather than by the outer layers. The corpuscles and absorbed radiation in the outer layers probably produce the irregular magnetic storms.

ECONOMIC STATISTICS.

There are numerous practical questions in climatology concerned with engineering, transportation, and agricultural interests. Careful statistics should be collected of the financial losses by floods to engineering structures, in order to study their efficiency in regard to the work called upon to be done by them. The sudden release of snows in the mountains by dynamic heated winds, and the best method of forecasting their recurrence should be studied for each locality. The effect of hurricanes upon sea walls, protecting breakwaters, and jetties is an important subject of research. The damage to buildings by high winds, and the architectural problems of their strength of resistance should be worked out. The railroads are interested in the washouts produced by rainfall, originally well distributed, but concentrated by run-off into dangerous destructive torrents of short duration. The railroads in the deserts and in the mountains of the West are expending large sums of money building dykes and protecting walls, and yet they possess only meager climatological data. The subject of the navigation of inland waterways depends upon the amount of snow and rainfall that is carried into the river channels. The effect of rainfall and evaporation upon soil fertility, the effect of winds and wind-breaks upon the vegetation in the fields call for careful examination.

In short the problems open to climatology and meteorology in their mutual relations cover a vast catalogue of work. It is proposed to publish in the MONTHLY WEATHER REVIEW the more practical aspects of these problems, and in the Mount Weather Bulletin the more theoretical studies, and papers are solicited for each publication.

AVERAGE ANNUAL RAINFALL OF PORTO RICO, W. I.

By O. L. FASSIG, Ph. D., Section Director, Porto Rico, W. I.

In the latter part of 1898 a station of the first order of the United States Weather Bureau was established in the city of San Juan, the capital of the newly acquired tropical island of Porto Rico. In the following year substations to the number of 30 or more were established over the island, at which the daily extremes of temperature, the amount of rainfall, the direction of the wind, and the general state of the weather were recorded daily. These substations were from time to time increased in number, and at the present time weather records are available for more than 50 localities for periods varying from 1 to 11 years. At 4 stations the observations antedate the American occupation: At San Juan extending back to 1870, at Canóvanas and at Mayagüez to 1889, and at Luquillo to 1896.

All of these records are now being reduced, under the direction of the Chief of the Weather Bureau, in the preparation of a

report upon the climate of Porto Rico. The present paper is confined to a brief preliminary survey of the average monthly and seasonal rainfall of the island, and to some of the more marked variations from what may, for the present, be regarded as normal values.

The island of Porto Rico is the smallest and easternmost of the Greater Antilles and lies between 18° and 18° 30′ north latitude, and between 65° 40′ and 67° 15′ longitude west from Greenwich. The island is nearly rectangular in form, with an east-west length of about 100 miles and an average width of about 35 miles.

As local topography is one of the principal factors in the control of rainfall distribution, it is unfortunate that there is not available even a rough attempt at a topographic chart of the island. Such maps as there are show the location of a mountain range, the principal watershed, extending across the greater portion of the island from east to west, a little to the south of the central line; also a shorter east-west range, the Luquillo Mountains, in the extreme northeast portion of the island. From these two systems numerous spurs extend, mostly northward, cutting up the island into a complex system of hills and valleys, with the hundreds of small streams for which the island is noted. The mountain peaks of the Luquillo Range and the main divide rise to elevations of 3,000 to 3,500 feet. The main divide has an average elevation of, perhaps, 2,000 feet, while the main spurs will average from 1,000 to 1,500 feet. The lowlands are found only along the coast, forming a narrow strip along the north, east, and west coasts, with a broader belt along the south coast. The localities for which rainfall records are here given range in elevation from sea level to 2,600 feet, with an average altitude of 640 feet. Fifteen of the 44 stations enumerated have elevations between 1,000 and 2,600 feet.

In the accompanying table the average rainfall is shown for months, seasons, and for the entire year, the length of the records varying from 5 to 20 years. The geographical distribution of rainfall over the island is shown more clearly by means of the seasonal and annual charts forming figs. 1 to 6.

Attention is directed only to the more important and striking characteristics of the rainfall distribution. The average annual rainfall for the island, as a whole, is 77 inches. The amounts vary from a minimum of 37 inches along the south coast—an area devoted largely to the cultivation of sugar cane—to a maximum of 136 inches on the eastern slope of the Luquillo Mountains in the northeast portion of the island, within the area of the proposed Luquillo National Forest Reserve. This range gives rise to a large number of little streams which water the extensive coffee and sugar plantations of the surrounding country. At stations along and near the south coast the average annual rainfall is about 45 inches; along the north coast, the region of the citrus fruits and pineapples, the average fall is about 65 inches. Along the east and west coasts the near-by mountains and hills cross the path of the prevailing winds and we find, in consequence, a heavier rainfall, with an average of 75 inches for the west coast and 85 inches for the east coast. Owing to similar favorable topographic conditions we find the rainfall considerably heavier in the interior of the island than along the north and south coasts, only a few miles distant.

There are three well-defined centers of heavy rainfall on the island: (1) The Luquillo Range, a heavily wooded and inaccessible region in the northeast; (2) the mountains about

Average monthly and seasonal precipitation (in inches) for the period 1899–1909 in Porto Rico, W. I.

Stations.	Number of years.	Elevation in feet.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Winter.	Spring.	Summer.	Autumn.	Year.
1. Adjuntas	9	1,700	3.85	1.21	4.03	5.53	8.79	7.48	7.94	12.16	11.03	12.78	8.73	4.91	9.97	18.35	27.58	32.54	88.44
2. Alto de la Bandera	5	2,600	3.26	3.86	4.54	5.54	9.14	7.16	6.56	12.64	13.58	14.46	9.49	4.96	12.08	19.22	26.36	37.53	95.19
3. Aguadilla	11	35	2.11	2.08	3.04	4.55	9.76	12.02	8.78	9.19	9.37	8.72	8.06	2.61	6.80	17.35	29.99	26.15	80.29
4. Aguirre	11	10	1.58	1.04	1.76	1.87	4.29	7.78	5.55	6.20	6.83	7.22	4.23	1.93	4.55	7.92	19.53	18.28	50.28
5. Aibonito	5	2,000	3.93	4.32	4.70	3.33	7.42	4.81	4.10	6.50	7.42	6.68	7.69	4.51	12.76	15.45	15.41	21.79	65.41
6. Arecibo	7	20	3.36	3.08	4.07	3.95	5.49	**4.24**	4.89	5.36	4.89	**5.43**	8.09	6.19	12.63	13.51	14.49	18.41	59.04
7. Bacupey (near Arecibo)	5	1,000	3.24	4.65	4.44	5.76	6.17	5.35	3.91	9.11	9.58	6.76	10.28	8.17	16.06	16.37	18.37	26.62	77.42
8. Barros	8	2,000	5.72	3.32	5.48	4.39	10.02	4.74	5.61	4.61	7.91	8.67	8.89	7.36	16.40	19.89	14.96	25.47	76.72
9. Bayamon	11	75	4.41	2.52	4.14	4.64	6.52	8.22	6.50	9.21	7.83	6.92	8.53	6.43	13.36	15.30	23.93	23.28	75.87
10. Caguas	11	250	4.18	2.27	3.31	3.48	4.86	7.85	8.07	7.34	7.21	7.78	5.92	4.87	11.32	11.65	23.26	20.91	67.87
11. Canovanas	20	20	5.18	2.62	3.61	4.74	6.41	7.13	10.46	8.69	6.93	6.30	9.93	7.54	15.34	14.76	26.28	23.16	79.54
12. Carmelita (1)	7	1,500	3.17	3.06	5.86	6.60	10.86	7.64	7.25	12.26	13.52	14.86	12.53	4.26	10.49	23.32	27.15	40.91	101.87
13. Carmelita (2)	7	2,500	4.52	4.04	**6.73**	7.09	12.23	7.50	7.73	**13.24**	**14.11**	**16.08**	13.11	6.36	14.92	26.05	28.47	43.30	112.74
14. Cayey	11	1,300	3.44	2.61	3.26	4.04	5.32	8.35	6.87	8.03	7.17	7.44	7.33	4.52	10.57	12.62	23.25	21.94	68.38
15. Cidra	11	1,300	6.00	4.09	5.21	4.51	6.82	8.65	8.79	10.92	6.48	6.78	7.46	7.43	17.52	16.54	28.36	20.72	83.14
16. Coamo	8	800	3.43	1.48	1.77	3.80	4.26	5.60	3.58	5.97	5.26	6.81	6.43	4.04	8.95	9.83	15.15	18.50	52.43
17. Corozal	11	600	4.84	4.04	4.64	5.53	6.30	6.28	7.15	8.02	7.38	9.14	8.66	6.79	15.67	16.47	21.45	25.18	78.77
18. Fajardo	11	15	3.71	2.24	3.37	4.12	5.47	7.23	6.09	5.96	7.63	8.74	9.61	5.16	11.11	12.96	19.28	25.98	69.33
19. Guanica	8	15	1.28	0.70	1.74	2.56	4.00	4.37	**1.94**	4.08	**4.25**	6.01	4.94	1.29	3.27	8.30	**10.39**	**15.20**	**37.16**
20. Guayama	9	17	1.84	1.16	2.20	2.37	5.29	7.94	6.11	4.96	6.95	8.20	5.35	2.02	5.02	9.86	19.01	20.50	54.39
21. Humacao	11	60	4.16	2.32	3.95	5.09	9.40	10.17	7.99	9.55	10.66	9.56	8.37	5.17	11.65	18.44	27.71	28.59	86.39
22. Isabela	11	250	3.14	2.72	2.77	4.17	5.70	4.82	3.39	6.06	5.35	5.59	8.66	5.48	11.34	12.64	14.27	19.60	57.85
23. Isolina	11	1,400	4.78	4.21	6.34	6.46	12.28	7.24	5.89	8.79	11.25	8.75	10.35	8.52	17.51	25.08	21.92	30.35	94.86
24. Juana Diaz	11	200	**0.94**	0.64	1.63	2.64	4.66	5.66	4.23	5.87	6.75	8.68	5.86	1.79	3.37	8.93	15.76	21.29	49.35
25. Lares	7	1,400	2.94	3.72	5.24	7.53	10.50	8.68	8.12	10.16	9.09	10.43	10.21	5.71	12.37	23.27	26.96	29.73	92.33
26. Las Marias	9	1,000	3.14	2.65	6.19	6.94	14.08	10.56	10.18	13.14	13.55	12.17	10.71	4.46	10.25	27.21	33.88	36.43	107.77
27. Luquilla (1)	9	500	7.22	3.04	6.29	10.60	**14.93**	13.57	**15.15**	11.56	11.83	15.39	16.22	**9.47**	19.73	31.87	**40.28**	**43.44**	135.32
28. Luquilla (2)	9	1,200	**8.21**	3.39	6.54	**11.27**	14.94	**13.75**	14.56	11.14	12.24	13.94	**16.23**	9.36	**20.96**	**32.75**	39.45	42.41	**135.57**
29. Manati	11	85	3.76	3.46	4.95	4.92	4.85	5.05	6.09	5.65	6.84	6.59	9.86	7.43	14.65	14.72	16.79	23.29	69.45
30. Maunabo	11	40	4.33	3.11	3.97	3.30	7.20	10.71	7.66	7.99	9.16	11.13	8.10	5.30	12.74	14.47	26.36	28.39	81.96
31. Mayaguez	15	20	2.05	1.68	2.90	4.51	7.60	7.66	9.62	9.87	8.87	7.99	6.25	2.81	6.54	15.01	27.15	23.11	71.81
32. Morovis	9	375	5.25	3.38	6.38	5.74	8.35	5.63	6.39	11.06	8.61	10.01	8.62	7.70	16.33	20.47	23.08	27.24	87.12
33. Ponce	11	50	1.00	0.69	1.38	1.99	**3.17**	5.48	3.47	5.25	5.75	7.46	**3.81**	**1.12**	**2.81**	**6.54**	14.20	17.02	40.57
34. Rio Blanco	6	150	5.04	**5.82**	6.36	5.85	10.56	12.58	10.96	12.17	13.36	12.18	10.99	7.30	18.16	22.77	35.71	36.53	113.17
35. Rio Piedras	8	75	3.90	3.07	4.16	4.31	6.23	6.68	6.25	8.47	7.69	5.94	7.04	7.07	14.04	14.70	21.40	20.67	70.81
36. San German	11	200	2.24	2.29	3.69	5.74	5.81	6.17	5.49	7.41	6.38	9.06	8.99	3.94	8.47	15.24	19.07	24.43	67.21
37. San Lorenzo	10	200	3.19	2.40	4.25	4.54	6.98	12.64	9.58	8.00	10.04	9.43	7.04	5.08	10.67	15.77	30.22	26.51	83.17
38. San Juan	11	82	4.52	2.10	3.17	3.85	4.79	6.20	6.47	7.44	6.36	6.11	7.37	5.40	12.02	11.81	20.11	20.04	63.98
39. Santa Isabel	9	22	1.24	0.75	**1.31**	**1.59**	4.95	4.40	3.67	**3.80**	5.56	6.41	4.65	2.16	4.15	7.85	11.87	16.62	40.67
40. Utuado	5	1,300	3.43	**0.46**	3.00	5.33	11.32	8.57	5.07	8.75	10.83	10.13	10.32	4.58	8.47	19.65	22.39	31.28	81.79
41. Utuado (San Salvador)	9	1,500	3.83	2.22	4.80	5.24	9.60	5.64	5.49	7.71	11.11	8.53	10.64	5.29	11.34	19.64	18.84	30.28	80.10
42. Vieques (Island)	11	45	3.51	2.38	2.61	3.34	4.06	5.68	5.05	5.75	7.12	7.07	5.26	2.98	8.87	10.01	16.48	19.45	53.81
43. Yabucoa	8	100	4.64	3.63	3.78	4.41	8.16	10.13	7.06	9.66	12.32	10.36	8.50	5.05	13.32	16.35	26.85	31.18	87.70
44. Yauco	11	200	2.13	0.99	2.61	3.19	4.48	5.28	3.87	5.84	5.70	6.82	5.33	1.76	4.88	10.28	14.99	17.85	48.00
Means			3.67	**2.63**	4.00	4.79	7.59	7.57	6.81	8.31	8.68	**3.99**	8.52	5.14	**11.44**	16.39	22.69	**26.16**	77.30
Maximum average			8.21	**5.82**	6.73	11.27	14.98	13.75	15.15	13.24	14.11	16.08	**16.23**	9.47	**20.96**	32.75	40.28	**43.44**	135.57
Minimum average			0.94	**0.46**	1.31	1.59	3.17	4.24	1.94	3.80	4.25	**5.43**	3.81	1.22	**2.81**	6.54	10.39	**15.20**	37.16

Maxima and minima are given in black figures.

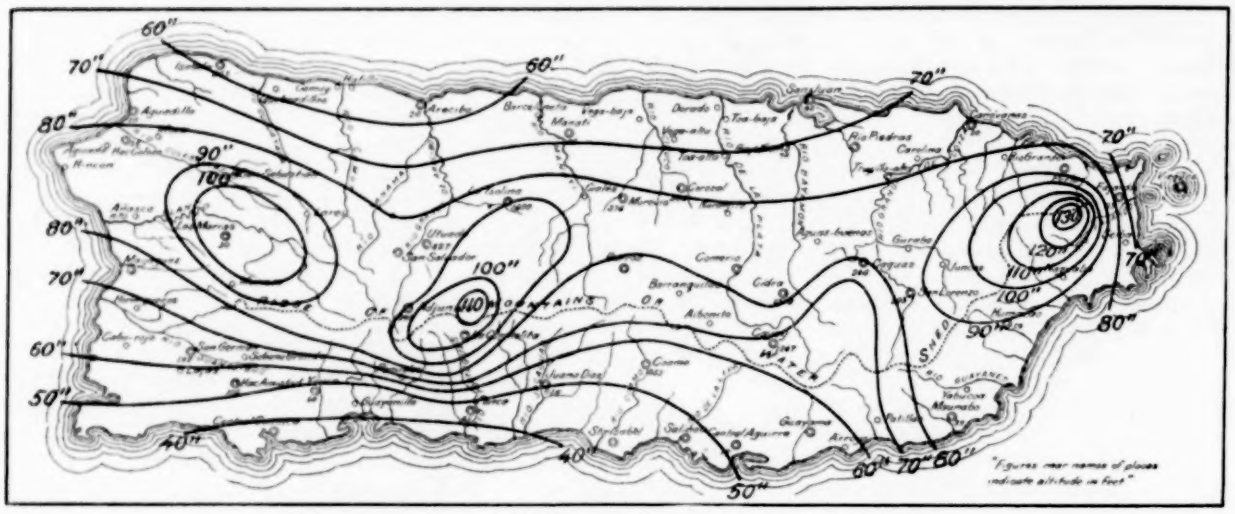


FIG. 1.—Porto Rico mean annual rainfall, 1899–1909.

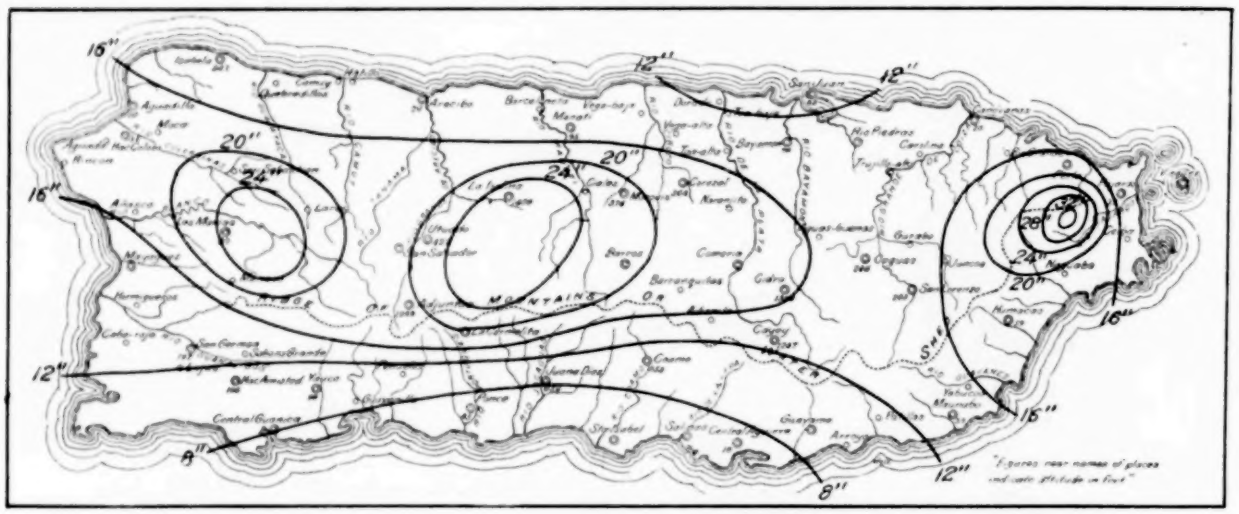


FIG. 2.—Porto Rico mean spring rainfall, 1899–1909 (March–May).

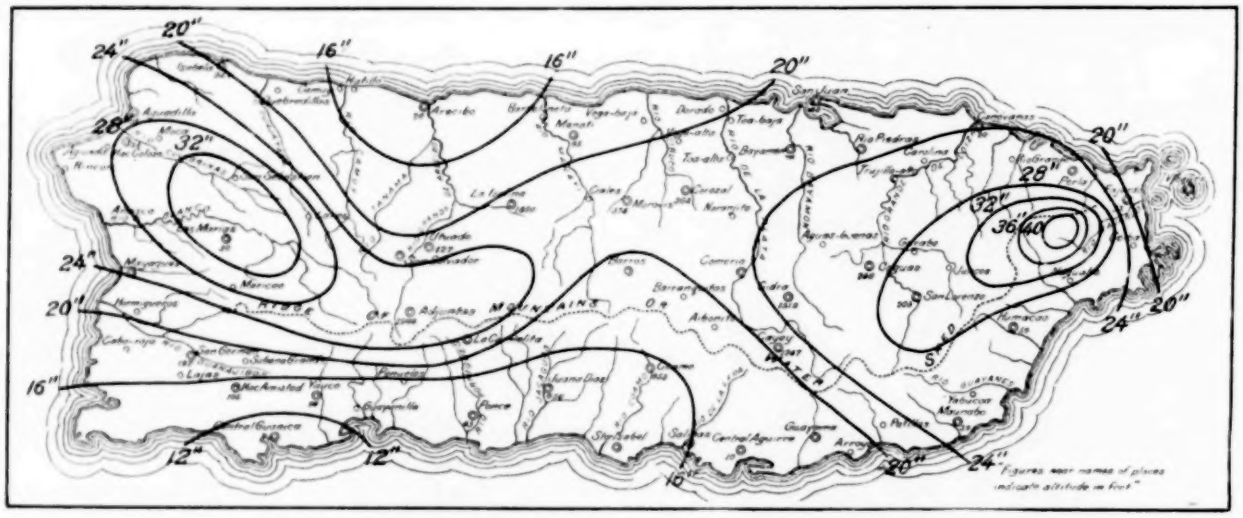


FIG. 3.—Porto Rico mean summer rainfall, 1899–1909 (June–August).

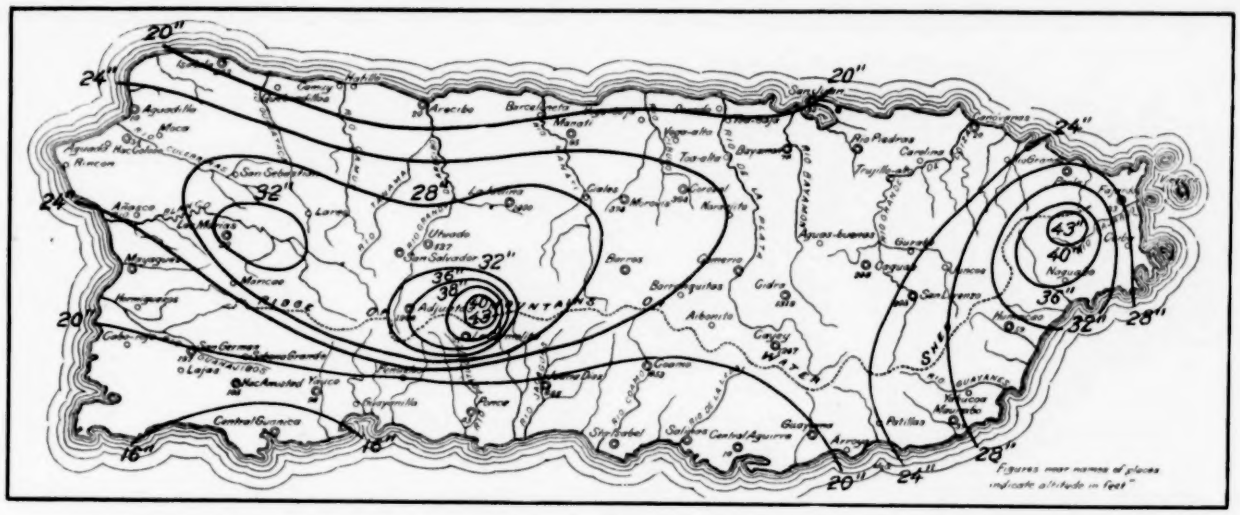


FIG. 4.—Porto Rico mean autumn rainfall, 1899–1909 (September–November).

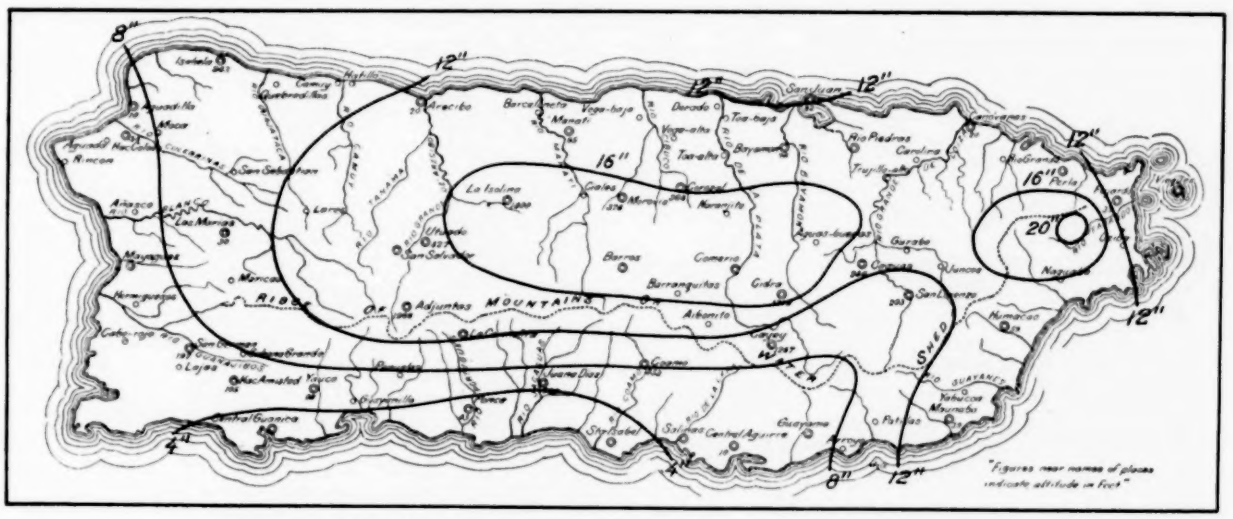


FIG. 5.—Porto Rico mean winter rainfall, 1899–1909 (December–February).

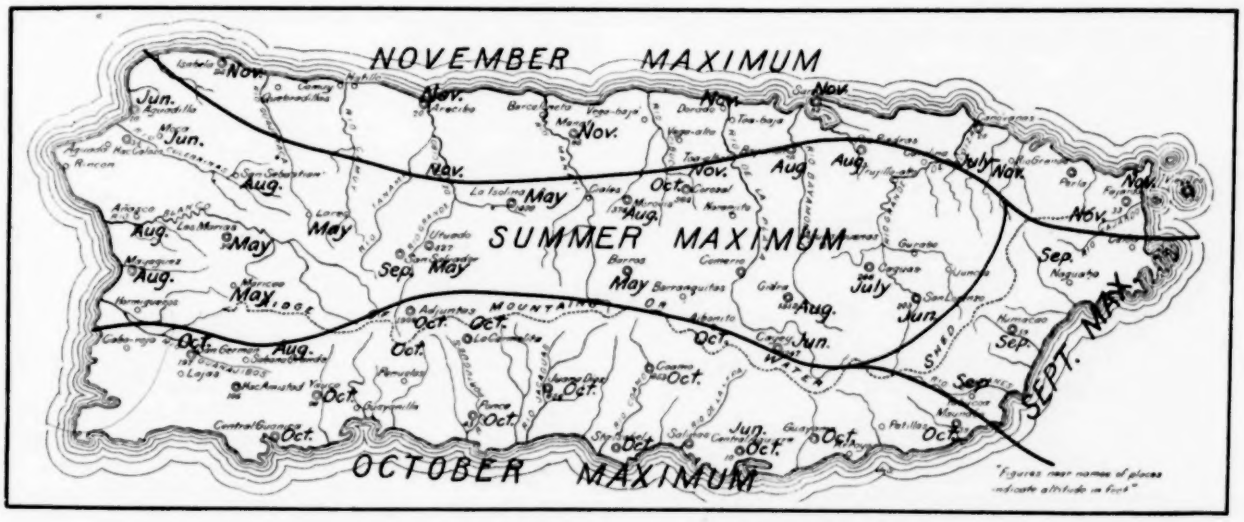


FIG. 6.—Map showing the month of maximum rainfall in Porto Rico, W. I.

Adjuntas, near the south-central part of the island, a region of coffee plantations; (3) a group of peaks in the west-central part, among which nestle the towns of Maricao, Las Marias, San Sebastian, and Lares, also a region of rich coffee plantations. In all of these centers the average annual rainfall exceeds 100 inches (see fig. 1).

The rainfall of the north side of the island differs from that of the south side not only in being greater in quantity but also in being more certain to fall in amounts sufficient for all the needs of plant growth at all seasons of the year. On the south side periods of 4 or 5 weeks with little or no rain are of frequent occurrence, while periods of 2 to 3 months with less than an inch of rainfall are not uncommon.

The scheme of irrigation now being provided for along the south coast will, in great measure, remedy the evils of an irregular and insufficient rainfall. In the mountains, but a few miles distant, there is an abundant water supply, available at all seasons of the year, which can be carried to the cane fields at comparatively small cost. At the present time it is costing the planters from $25 to $50 per acre per year to pump ground water for irrigating their cane fields.

There are no well-defined wet and dry seasons on the island. The winter rains (fig. 5) are comparatively light, with a minimum in February at practically all stations having a record of more than 7 or 8 years. From February there is a steady increase in the rainfall through May. From May to November there is no uniformity in the variations. For the island, as a whole, the maximum is reached in October (see fig. 4), though the amounts from May to November are so nearly alike that a period of heavy rains may readily throw the maximum from one month into another, even with a record of 10 years or more. This was abundantly illustrated by the heavy rains of November, 1909, increasing the average value for the month in many localities to such an extent as to change the maximum from October to November. Charting the time of maximum rainfall (see fig. 6) we find a rough division of the island into three areas: South of the main divide the maximum occurs almost without exception in October; along the north coast it occurs in November; in the interior and on the west coast it falls in the summer months, from May to August. On the east coast it occurs in September.

In the seasonal distribution there is a progressive increase in the amount of rainfall, for the island as a whole, though the statement does not apply to individual stations (see figs. 2 to 5). The figures are: Winter, 11 inches; spring, 16 inches; summer, 23 inches; and autumn, 26 inches, making up the total of 77 inches for the average annual amount for the island.

WEATHER, FORECASTS, AND WARNINGS FOR THE MONTH.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

A barometric depression that advanced from the north Pacific coast from October 28 to November 2 was preceded by unusually mild temperature for the season and attended by general rains in middle and northern districts and by high winds on the Great Lakes and along the northern coasts. Following the passage of the storm-center there was a sharp fall in temperature. The appearance and passage of this storm was announced in a special forecast that was issued October 26. The following editorial from the Portland, Oreg., Oregonian of November 7 refers to this forecast and also to a hurricane that had occurred in southeastern waters:

> A general storm warning was sent out about 10 days ago, and because Portland missed the storm center and failed to witness immediate results, it was assumed that the Weather Bureau had made a bad guess. But out at sea, just beyond the shore line and to the north and south, Old Boreas was holding high carnival, and for many days afterward nearly every craft that entered north Pacific ports brought tales of a fearful struggle with the elements, in which deck loads were lost, sails blown away, and houses smashed in by the seas. Here on the Pacific, with no near-by stations to the westward, and wireless not in sufficient use to enable steamers to report conditions, the service is not yet infallible on storms approaching from the sea. As an example of what can be done with reporting stations in all directions, the Weather Bureau service on the two West Indian hurricanes that struck the South Atlantic States in September and October was remarkable.
>
> By giving warnings of these two hurricanes 5 days before they reached the Louisiana, Mississippi, and Florida coasts, it is estimated that there was a saving in property alone of no less than $5,000,000. Several hundred small boats were wrecked in the harbor of Key West alone. Had the storm warnings not kept them in port, they would have been lost at sea with their crews, numbering many hundreds. At this season of the year the good work of the Bureau is shown to the best advantage in saving life and property along the seacoast. At other seasons of the year its accurate predictions of rain or frost enable farmers and planters to guard most effectively against loss.

Areas of low barometer of slight intensity that moved eastward along the northern border of the country from the 5th to 8th and 8th to 12th were attended by rains in the north-central States and caused an unusual prevalence of warm southerly winds generally over the country.

During the latter half of the first decade of the month a storm that apparently acquired intensity in that neighborhood and remained nearly stationary for a period of 4 or 5 days caused exceptionally heavy rains in Jamaica. From November 5 to 11, inclusive, the rainfall at Kingston was 30.45 inches. Six lives were lost, about 20 per cent of the banana crop was destroyed, and much other damage caused by floods and high winds. The lowest barometer reading at Kingston during the storm was 29.70 inches on November 12. By the morning of November 11 the storm-center had advanced to a point near the west coast of Haiti, where great damage by flood was reported. Santo Domingo was also severely visited. Moving thence northeastward the center of disturbance passed near and north of the Azores during November 15 and 16, with minimum reported pressure at the Horta Observatory of 28.84 inches and maximum wind velocity of 56 miles an hour from the southwest. Vessels in the path of the storm, both in the Windward Passage and on the Atlantic, experienced gales of exceptional violence. For several days following November 16 pressure continued low between the Azores and the coast of Portugal, and severe weather was undoubtedly experienced in that region.

During the prevalence of this storm over the tropical and subtropical Atlantic, two typhoons visited the Philippine Islands. One swept over the island of Panay, Visayas group, on November 7 and caused considerable destruction of property and crops, and the other crossed the Philippines on the 15th and apparently recurved thence northward over the Japanese Islands and thence northeastward and eastward over the Pacific.

During the first half of the second decade of the month severe storms prevailed in northwestern and north-central Europe. At Cuxhaven the barometer fell to a reported reading of 28.80 inches on the 13th, and on the 14th a reading of 28.96 inches was reported at St. Petersburg. The storms encountered during this period on the North Sea were exceptionally severe.

On November 15 a special forecast announced a week or 10-day period of cooler weather for the eastern portion of the United States, with disturbances attended by rain in southern and snow in northern districts and followed by cool weather that would probably carry the frost line into the Gulf and South Atlantic States. Supplementing this forecast middle and north Pacific coast stations were advised on the 16th that a disturbance would reach that coast by Thursday the 16th.

From the 15th to 17th a disturbance of marked strength advanced from the southern Rocky Mountain region eastward and northeastward to the Atlantic coast, attended by snow

from the States of the Missouri Valley over the Upper Mississippi Valley, the Lake region, New England and the interior of New York and Pennsylvania and by rain generally over the Southern States.

In the Valley of the Red River of the North snow, drifted by high winds, interrupted railroad traffic, and on the Great Lakes a number of vessels were wrecked or lost owing to gales or snow. Following the disturbance there was a marked fall in temperature, with frost in the interior of the Gulf and South Atlantic States, and light frost in northern Florida on the morning of November 19. On the morning of November 18 a disturbance of marked intensity had appeared on the north Pacific coast. The winds attending this disturbance attained velocities of 40 to 60 miles an hour on the north coast, and its rain area extended southward over the northern half of the State of California. Floods, said to have been the severest of record for the time of the year, occurred generally throughout Washington and Oregon. During November 19 and 20 this disturbance moved southeastward over the Rocky Mountain districts, and recurved thence over the central valleys and the Lake region during November 21 and 22, reaching the St. Lawrence Valley on November 23, attended by rains over the southern and snows over the northern districts, by marked temperature changes and by high winds over the Great Lakes and along the middle and northern Pacific and Atlantic coasts. During the night of November 23 an area of high pressure from the Hudson Bay region moved southeastward over the Canadian Maritime Provinces, and a storm of marked intensity developed near Hatteras, N. C. This combination resulted in severe northerly gales along the coast, and considerable snow in the Middle Atlantic States.

On November 22 a storm from the Pacific appeared over Oregon and Washington. This was apparently a continuation of the typhoon that visited the Philippine Islands November 15 and recurved thence northward and northeastward over the Pacific. Following the passage of the typhoon over the western Pacific an area of high barometer of great magnitude settled southward over eastern continental Asia, and on the morning of the 22d a reading of 31.00 inches was reported at Irkutsk and 30.48 inches at Vladivostok.

During the night of the 24th another storm from the Pacific appeared on the north coast. By the night of the 26th it had reached the western slope of the middle Rockies, and a strong high area was developing to the northward. General snows resulted in the Rocky Mountain region and the middle Plateau, although the low area, after reaching Colorado on the morning of the 27th, gradually dissipated after sending an arm of depression southward that reached the mouth of the Rio Grande on the evening of the 28th, attended by rains in Texas, with some snow in the Panhandle. No unusually low temperatures were recorded, except in central Wyoming. During the the passage of this disturbance abnormally high pressure, with generally fair weather and moderate temperatures prevailed over the eastern half of the country.

Another great disturbance appeared off the coast of Alaska on the morning of the 27th, and on the morning of the 28th the barometer at Sitka read 28.78 inches. The morning of the 29th showed four great centers of depression as follows: Vladivostok, Siberia, 29.42 inches; Sitka, Alaska, 28.96 inches; Hamilton, Bermuda, 29.58 inches, and Seydisford, Iceland, 28.46 inches, the latter depression extending over the whole of Europe. At the same time pressure was high over the Azores and the interior of the United States, but with unsettled weather over the latter district.

The Bermuda disturbance was apparently the same one that was reported on the 27th as having cut off cable communication with the Windward Islands. Its northward movement was quite slow, and at the end of the month its center was apparently not far to the northward of Bermuda. This storm caused some high northerly winds along the New England coast on the 29th and 30th.

The Alaska disturbance sent an offshoot to the eastward over the British Northwest during the 29th and 30th, without marked effect, except some additional rains over the northern districts west of the Rocky Mountains and in California. At the same time another middle Plateau disturbance moved eastward, causing general rains over the Plains States, the Arkansas and Missouri valleys, and some snows in the central and southern Rocky Mountain region.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	12	42.9	+ 3.5	+ 5.6	+ 0.5
Middle Atlantic	16	49.2	+ 4.7	+ 9.2	+ 0.8
South Atlantic	10	58.5	+ 4.4	+12.6	+ 1.1
Florida Peninsula*	8	68.0	+ 1.6	+17.3	+ 1.6
East Gulf	11	62.0	+ 6.2	+21.0	+ 1.9
West Gulf	10	64.4	+ 8.6	+25.9	+ 2.4
Ohio Valley and Tennessee	13	53.6	+ 3.5	+11.6	+ 1.1
Lower Lakes	10	44.8	+ 5.9	+ 2.2	+ 0.2
Upper Lakes	12	40.8	+ 6.7	+10.8	+ 1.0
North Dakota*	9	28.4	+ 3.5	+ 3.7	+ 0.3
Upper Mississippi Valley	14	46.7	+ 9.0	+12.0	+ 1.1
Missouri Valley	12	44.1	+ 6.6	+15.1	+ 1.3
Northern slope	9	35.0	+ 3.0	+ 3.4	+ 0.3
Middle slope	5	48.0	+ 5.8	+13.7	+ 1.2
Southern slope*	7	55.7	+ 5.7	+18.6	+ 1.6
Southern Plateau*	10	48.7	+ 1.2	− 3.3	− 0.3
Middle Plateau*	10	38.1	+ 1.1	+ 5.6	+ 0.5
Northern Plateau*	11	40.5	+ 2.5	+ 0.7	+ 0.1
North Pacific	7	46.6	− 1.1	− 9.7	− 0.9
Middle Pacific	5	53.3	− 0.3	− 2.3	− 0.2
South Pacific	4	56.8	− 0.3	+ 1.3	+ 0.1

*Regular Weather Bureau and selected cooperative stations.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	11	2.94	83	− 0.6	− 2.4
Middle Atlantic	16	1.14	36	− 1.7	− 3.4
South Atlantic	11	0.84	28	− 2.1	−10.1
Florida Peninsula*	8	0.59	27	− 1.6	− 4.1
East Gulf	11	1.11	32	− 2.4	+ 3.8
West Gulf	10	2.10	68	− 1.0	−12.2
Ohio Valley and Tennessee	13	2.00	57	− 1.5	+ 1.5
Lower Lakes	10	3.03	100	0.0	+ 1.0
Upper Lakes	12	2.98	125	+ 0.6	− 0.7
North Dakota*	9	0.41	58	− 0.3	− 0.4
Upper Mississippi Valley	15	3.79	181	+ 1.7	+ 2.4
Missouri Valley	12	3.89	302	+ 2.6	+ 4.6
Northern slope	9	1.35	159	+ 0.5	+ 0.4
Middle slope	5	4.08	416	+ 3.1	+ 1.6
Southern slope*	7	3.06	184	+ 1.4	− 7.2
Southern Plateau*	11	0.57	74	− 0.2	− 0.3
Middle Plateau*	11	1.78	200	+ 0.9	+ 1.3
Northern Plateau*	11	2.76	177	+ 1.2	+ 1.2
North Pacific	7	12.98	178	+ 5.7	+ 2.5
Middle Pacific	7	3.74	133	+ 0.9	+ 6.0
South Pacific	4	2.23	181	+ 1.0	+ 5.6

*Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	76	− 2	Missouri Valley	77	+ 6
Middle Atlantic	72	− 3	Northern slope	71	+ 4
South Atlantic	75	− 3	Middle slope	70	+ 8
Florida Peninsula	76	− 4	Southern slope	66	+ 7
East Gulf	73	− 3	Southern Plateau	52	+ 9
West Gulf	74	0	Middle Plateau	66	+ 8
Ohio Valley and Tennessee	70	− 3	Northern Plateau	73	− 1
Lower Lakes	77	0	North Pacific	87	+ 3
Upper Lakes	82	+ 2	Middle Pacific	78	+ 3
North Dakota	82	+ 3	South Pacific	70	+ 3
Upper Mississippi Valley	77	+ 3			

When the weather conditions for the month were summarized, they disclosed the following general facts: The month was an unusually warm one, California alone reporting temperatures about normal. The warmest section was that extending from eastern Texas northeastward through east Oklahoma, Arkansas, southeast Kansas, Missouri, west Tennessee, western and central Kentucky, extreme west Ohio, Indiana, Illinois, and southern Wisconsin, where the mean temperatures ranged from 9° to 12° above the seasonal average. On each side of this district the excess departures from the normal conditions gradually decreased to the coasts. Maximum temperatures of 80° occurred as far north as central South Dakota.

Drought conditions continued over that portion of the country extending from the Gulf States eastward and northeastward through the Ohio Valley and the Atlantic States, except along the southern New England coast, with a maximum deficiency of nearly 3½ inches in the Gulf States. There were also slight deficiencies in North Dakota, eastern and southern Montana, and central California; elsewhere the precipitation was in excess, especially on the north Pacific coast, where from 4 to 7½ inches more rain fell than usual, and over interior Texas, Kansas, the lower Missouri and the middle Mississippi valleys, where the excess ranged from 2 to more than 6 inches. Generally the areas of highest temperature and of maximum precipitation were coincident.

From 10 to 20 inches of snow fell over northern Iowa, and from 5 to 20 inches over Nebraska, falling heaviest over the western counties.

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Atlanta, Ga	22	52	sw.	Nantucket, Mass	24	67	ne.
Block Island, R. I	18	60	nw.	Do	29	54	ne.
Do	24	72	ne.	North Head, Wash	1	60	se.
Do	29	56	ne.	Do	6	58	se.
Buffalo, N. Y	17	54	w.	Do	7	50	se.
Burlington, Vt	8	50	s.	Do	8	52	s.
Canton, N. Y	17	54	sw.	Do	10	50	s.
Cape Henry, Va	24	56	n.	Do	17	58	se.
Cleveland, Ohio	16	51	sw.	Do	18	90	se.
Columbus, Ohio	22	54	w.	Do	22	55	s.
Del Rio, Tex	13	56	nw.	Do	27	74	s.
Detroit, Mich	16	57	w.	Do	28	76	se.
Do	17	54	w.	Do	29	85	se.
Duluth, Minn	14	52	ne.	Oklahoma, Okla	10	56	s.
Eastport, Me	24	52	ne.	Port Reyes Light, Cal	11	52	nw.
Do	25	70	ne.	Do	13	62	nw.
Grand Haven, Mich	17	50	w.	Do	14	57	nw.
Green Bay, Wis	11	54	w.	Do	26	50	nw.
Mount Tamalpais, Cal	11	58	n.	Seattle, Wash	18	56	s.
Do	13	57	nw.	Tatoosh Island, Wash	1	65	s.
Do	14	52	nw.	Do	18	57	s.
Do	26	56	nw.	Do	21	50	e.
Do	26	55	nw.	Do	22	50	sw.
Do	29	54	nw.	Do	23	54	sw.
Mount Weather, Va	17	50	nw.	Do	27	64	s.
Do	25	52	nw.	Do	28	68	s.
Do	26	54	nw.	Toledo, Ohio	16	60	sw.

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	6.6	+ 0.8	Missouri Valley	6.0	+ 1.2
Middle Atlantic	4.8	− 0.5	Northern slope	6.5	+ 1.7
South Atlantic	3.6	− 0.9	Middle slope	5.3	+ 1.4
Florida Peninsula	3.4	− 1.1	Southern slope	4.5	− 0.7
East Gulf	3.2	− 1.4	Southern Plateau	2.7	− 0.1
West Gulf	4.7	+ 0.1	Middle Plateau	5.5	+ 1.6
Ohio Valley and Tennessee	5.1	− 0.6	Northern Plateau	7.7	+ 1.9
Lower Lakes	6.6	− 0.7	North Pacific	8.2	+ 0.7
Upper Lakes	7.3	+ 0.2	Middle Pacific	5.3	− 0.8
North Dakota	6.3	+ 0.9	South Pacific	3.7	+ 0.4
Upper Mississippi Valley	6.4	+ 1.1			

RAINFALL IN JAMAICA.

Through the kindness of Mr. Maxwell Hall, meteorologist to the government of Jamaica and now in charge of the meteorological service of that island, we have received the following data:

Comparative table of rainfall.

[Based upon the average stations only.]

NOVEMBER, 1909.

Divisions.	Relative area.	Number of stations.	Rainfall.	
			1909.	Average.
			Inches.	*Inches.*
Northeastern division	25	17	38.07	10.90
Northern division	22	41	13.66	5.96
West-central division	26	20	14.24	6.05
Southern division	27	26	18.92	4.97
Means	100	.....	21.22	6.97

These excessive rains were due to a remarkable disturbance which affected Jamaica between the 4th and the 11th of November. The rains were chiefly confined to the east end of the island and to the highest mountains, and at Silver Hill plantation, near Hardware Gap, 135 inches were recorded.

* * * * * * *

The largest rainfall among the stations which report monthly occurred at Radnor, at an elevation of 3,050 feet, namely, 125.88 inches; but as the gage overflowed once or twice, the true rainfall must have been at least 130 inches.

* * * * * * *

These large rainfalls are in marked contrast to the lowest, namely 2.72 inches, recorded at the Negril Point light-house.

* * * * * * *

If we consider that the disturbed weather was widely distributed over this part of the Caribbean Sea, it is remarkable that its boundary should be so clearly marked that, while the east end of the island should have deluges of rain, the west end should have hardly any, only 2.72 inches being recorded at the Negril Point light-house, as already stated.

RIVERS AND FLOODS.

The only serious floods of the month occurred during the latter portion in the Pacific Northwest, and, as they were still in progress at the end of the month, the report thereof will appear in the MONTHLY WEATHER REVIEW for December, 1909.

There was a moderate flood in the Cottonwood, Neosho, and lower Kansas rivers about the middle of the month, caused by heavy rains over eastern Kansas from the 12th to the 16th, inclusive. From 5 to 6 inches of rain fell during the 5 days mentioned, and stages but little below the flood stage were reached in the Cottonwood and upper Neosho rivers, necessitating the issue of flood warnings on the 15th. The crest of the flood wave reached the Arkansas River on the 19th, and a rise from 8 to 10 feet resulted in that stream, the crest passing Pine Bluff, Ark., on the 23d, with a stage of 15.2 feet.

The same general conditions caused a marked rise in the lower Kansas River, and at Topeka, Kans., a crest stage of 20.3 feet, or 0.7 foot below the flood stage, was reached on the 15th. A moderate wave also came from the Missouri River, between Omaha, Nebr., and Kansas City, Mo., and this, with the water from the Kansas River, caused a rise of from 8 to 10 feet in the Missouri River from Kansas City eastward. There were some heavy rains over the middle Mississippi Valley about the same time, and the combined effect was a stage of 20.5 feet at St. Louis on the 20th. The crest passed Cairo, Ill., on the 23d, Memphis, Tenn., on the 25th, and Vicksburg, Miss., on the 30th.

The Ohio, Cumberland and Tennessee rivers remained comparatively low throughout the month.

ICE.

The first ice reported was at Sioux City, Iowa, on the 17th. It was light running ice and reached Omaha on the 23d. None was observed below Omaha. The Red River of the North closed on the 16th at Moorhead, Minn., and the Missouri River on the 19th at Pierre, S. Dak., while the James River at Huron, S. Dak., was frozen from the 16th to the 23d, inclusive.

No ice was reported in the Mississippi River, except a little slush ice at St. Paul, Minn., on the 20th and 21st. Some ice was also noted during the latter part of the month in the smaller streams of northern New York and northern New England.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport on the Red.—*H. C. Frankenfield, Professor of Meteorology.*

SPECIAL PAPERS ON GENERAL METEOROLOGY.

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a ——.

Nature. London. v. 82. January 27, 1910.

Harwood, W. A. Upper-air temperatures registered outside and inside balloons. p. 366.

Science. New York. v. 30. December 27, 1909.

Thomson, Elihu. Atmospheric electricity. p. 857–869.

Science. New York. v. 31. January 28, 1910.

Potts, Louis M. Ball lightning. p. 144.

Jones, A. T. A laboratory illustration of ball lightning. p. 144.

Symons's meteorological magazine. London. v. 44. January, 1910.

—— Capt. Henry Toynbee, 22d October, 1819–29th March, 1909. p. 225.

Fox, Wilson L., & Curtis, R. H. Standardization of sunshine recorders. p. 228–229. [Historical note as to the Jordan instrument of 1838.]

Cooke, Richard. Weather references in old parish registers. p. 232–233.

Terrestrial magnetism and atmospheric electricity. Washington. v. 14. Dec., 1909.

—— Biographical sketch of Adolf Erman. p. 186. [With portrait.]

Aérophile. Paris. 18 année. 1 jan. 1910.

E., A. Les instruments de précision à l'exposition d'aéronautique de 1909. p. 13–15. [Includes description and figures of meteorological instruments for use in aeronautics.]

Journal de physique. Paris. Tome 9. Jan. 1910.

Pecsi, A. Sur la détermination de l'azimut des rayons sismiques à l'aide de divers instruments. p. 50–54.

Société belge d'astronomie. Bulletin. Bruxelles. 14 année. Dec. 1909.

Nodon, A. Un novel électromètre pour observatoire. p. 515–520. [Illustrated.]

Nodon, Albert. Influence des variations de l'activité solaire sur la physique terrestre. p. 520–522.

Himmel und Erde. Berlin. Jahrgang 22. Jan. 1910.

Mylius, E. Gewitterbildung. p. 152–156. [Illustrated.]

Meteorologische Zeitschrift. Braunschweig. Band 27. Jan. 1910.

Fessler, A. Die Kälteeinbrüche in Mitteleuropa im Winter 1908–1909. p. 1–12.

Defant, A. John Eliot, Langjährige Windregistrierungen zu Saugor Island und zu Alipore (Calcutta). p. 12–18.

Burchard, Oscar. Zur Klimatologie von Teneriffa. p. 19–23.

Lachmann, G. Victor Kremser. p. 24–25.

Wagner, A. Bemerkung zum jährlichen Gang der isothermen Zone. p. 29–30.

Hann, J[ulius]. Ist die Luft auf den Bergen kälter als die Atmosphäre in gleicher Höhe? p. 30–31.

Süring, R. Ergebnisse der Kayserschen Wolkenhöhenmessungen in Danzig. p. 31–35.

Hann, J[ulius]. Über den jährlichen Gang des Luftdruckes und das fragliche Luftdruckminimum in der Region des Tschadsees. p. 38–40.

Alessandri, C., & Eredia, F. Über den täglichen Gang der meteorologischen Elemente auf dem Monte Rosa und an dessen Fuss im Sommer. p. 40–41.

—— Regenfall auf Malden Island im äquatorialen pazifischen Ozean. p. 41–42.

—— Wettertypen in Ägypten. p. 42–44.

Petermanns Mitteilungen. Gotha. 55. Band. Dezember 1909.

Höck, F. Klima und Obstbau in Deutschland. p. 363–364. [Abstract of work by Bechtle.]

Schott, G. Pilotenkarten, meteorologische Karten und Monatskarten der Oceane. Ein Beitrag zur maritimen Kartographie. p. 377–379.

Prometheus. Berlin. Jahrgang 21. 29. Dez. 1909.

—— Versuche mit dem Bezug von Wetter-Funkentelegrammen vom nordatlantischen Ozean. p. 206–207. [Results of experiments by the Seewarte in Feb.-April & Aug.-Sept., 1909.]

Woche. Berlin. 12. Jahrgang. 22 Januar 1909.

Friedrich, Otto. Vom höchsten Einwohner des deutschen Reichs. p. 152–155. [Description of Zugspitze meteorological observatory, by the observer.]

Società spettroscopisti Italiana. Memorie. Catania. v. 38.

Bemporad, Giulio. Sulla curva rappresentativa dell'intensità della radiazione solare. p. 186. [Proposes a new formula for representing the diurnal march of the intensity of solar radiation.]

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

The following have been selected from among the titles of books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be lent for a limited time to officials and employees who make application for them. Anonymous publications are indicated by a ——.

Arnold, Hugo.
Die Erdbewegung während des ersten Vorläufers eines Erdbebens. Leipzig. 1909. p. 269–316. 8°. (Inaug.-diss.—Göttingen.)

Baden. Zentralbureau für Meteorologie und Hydrographie.
Niederschlagsbeobachtungen . . . Jahrg. 1909. 1. Halbjahr. Karlsruhe. 1909. 25 p. 4°.

British Guiana. Botanic gardens.
Report 1908–1909. pt. 2. Meteorological observations. Georgetown. 1909. p. 10–16.

Colombo observatory.
Report on the Colombo observatory and the meteorology of Ceylon for 1908. [Colombo. 1909.] N 50 p. f°.

Eredia Filippo.
I venti in Italia. 10. Versante meridional Mediterraneo. 11. Sicilia. 12. Conclusioni. Roma. 1908–1909. 4°. (Estratti dalla Rivista di aeronautica e Boll. della Soc. aeronautica Italiana.)

Geographisches Jahrbuch.
32. Band, 1909. 2e Hälfte. Gotha. 1909. vii, 241–473 p. 8°.

Germany. Deutsche Seewarte.
Deutsches meteorologisches Jahrbuch für 1908. Ergebnisse der meteorologischen Beobachtungen an 10 Stationen II. Ordnung und an Sturmwarnungstellen, sowie stündliche Aufzeichnungen an 4 Normal-Beobachtungs-Stationen. Jahrg. 31. Hamburg. 1909. vi, 193 p. f°.

Dienstanweisung für die Sturmwarnungstellen der Deutschen Seewarte (fünfte Ausgabe) die Windsemaphorstationen und die Windmeldestellen. Hamburg. 1909. viii, 40 p. 4°.

Segelhandbuch für den atlantischen Ozean. 3e Auflage. Hamburg. 1910. xiv, 562 p. 4°.

Goetz, E.
. . . The rainfall of Rhodesia. London. 1909. iv, 129 p. 8°. (Proceedings of the Rhodesia scientific association. v. 8. pt. 3.)

Granada. Observatorio meteorologico de Cartuja.
Boletín anual . . . 1908. Granada. 1909. 144 p. f°.

Hérault (France). Commission météorologique.
Bulletin météorologique. Année 1907 (35me année). Montpellier. 1909. 31 p. 4°.
Same. Année 1908 (36e année). Montpellier. 1909. 49 p. 4°.
India. Meteorological department.
Rainfall data of India. 1908. Granada. 1909. 144 p. f°.
Innes, R. T. A.
. . . Transvaal sea-level temperatures. [From the "Transactions of the Royal society of South Africa," v. 1, pt. 1; July, 1909.]
Italy. Ufficio centrale meteorologico e geodinamico.
Annali . . . v. 18. Parte 3, 1896. Roma. 1909. viii, 269 p. f°.
Same. v. 19. Parte I, 1897. Roma. 1907. 352 p. f°.
Same. v. 27. Parte I, 1905. Roma. 1908. 457 p. f°.
Same. v. 28. Parte I, 1906. Roma. 1909. 233 p. f°.
Lausanne. Institut agricole. Station météorologique du Champ-de-l'air.
Observations météorologiques . . . Année 1908. 22e année. Lausanne. 1909. viii, 48 p. 4°.
Liefmann, H.
Über den Nachweis von Russ in der Luft. Halle a S. 1907. 31 p. 8°. (Inaug.-diss.—Halle.)
Lisbon. Observatorio do Infante D. Luiz.
Annaes . . . 1906. v. 44. Lisboa. 1909. 131 p. f°.
Mauritius. Royal Alfred observatory.
Annual report . . . 1908. [Pamplemousses. 1909.] 19 p. f°.
Osaka (Japan). Observatory.
. . . On meteorological observations. 1908. Japan. 8°. (Annual report 1908.)
Russia. Central physical observatory.
Annales. 1906. 1er partie. St. Petersburg. 1909. xxiv, 25 p. f°.
Same. 1906. 2me partie. St. Petersburg. 1909. f°.
Venice. Ufficio idrografico.
. . . Stazioni d'osservazione . . . Venezia. 1909. 176 p. 4°. (Pub. N. 2.)

CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given, for the various sections of the Climatological Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting the greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have ten or more years of observations. Of course the number of such records is smaller than the total number of stations.

Temperature and precipitation by sections, November, 1909.

Section.	Temperature—in degrees Fahrenheit.							Precipitation—in inches and hundredths.					
	Section average.	Departure from the normal.	Monthly extremes.					Section average.	Departure from the normal.	Greatest monthly.		Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest. Date.			Station.	Amount.	Station.	Amount.
Alabama	59.9	+ 5.6	Evergreen	90	7	Camp Hill	18 19	1.26	− 1.80	Thomasville	2.76	Ozark	T.
Arizona	53.2	+ 0.1	Gilabend	98	3	Flagstaff, B	−16 16	0.72	− 0.36	Pinal Ranch	2.38	2 stations	0.02
Arkansas	59.3	+ 8.7	Fayetteville	90	4	Bergman	16 18	3.75	0.00	Newport	7.98	Springbank	1.38
California	50.7	− 1.3	Escondido	100	2	Tamarack	− 8 15	4.52	+ 0.98	Branscomb	25.35	Bagdad	0.00
Colorado	36.0	+ 1.9	Delta	85	1	Wagon Wheel Gap	−23 18	1.55	+ 0.83	Cascade	4.89	Eads	0.36
Florida	66.5	+ 1.8	Cedar Keys	91	13	Molino	27 19	0.92	− 1.29	St. Augustine	3.36	2 stations	0.00
Georgia	59.2	+ 4.8	Quitman	92	5,8	Clayton	22 19	0.99	− 1.70	Tallapoosa	2.18	Morgan	0.05
Hawaii	70.9		2 stations	89	13†	Humuuia, Hawaii	35 23†	2.34		Kopiliula, Maui	10.43	6 stations	0.00
Idaho	37.7	+ 2.0	Lowry	81	1	Blackfoot Dam	− 7 28	4.63	+ 1.77	Grand Forks	20.90	Mackay	0.48
Illinois	50.4	+ 9.2	Du Quoin	85	3,5	Lanark	2 23	4.12	+ 1.45	Grafton	6.74	Ottawa	2.57
Indiana	50.9	+ 9.6	Rome	82	6	Lima	18 22	3.20	− 0.51	Hammond	5.60	Seymour	1.39
Iowa	42.4	+ 6.5	St. Charles	84	5	Washta	− 4 18	5.39	+ 4.00	Humboldt	11.48	Independence	2.07
Kansas	48.8	+ 6.3	Kingman	96	4	St. Francis	6 16	5.21	+ 4.19	Ashland	11.69	Ottawa	1.84
Kentucky	54.6	+ 8.8	Bowling Green	88	12	Beattyville	19 25	2.23	− 1.59	Hopkinsville	3.60	Middlesboro	1.36
Louisiana	64.0	+ 5.6	Schriever	91	7	Tallulah	24 18	1.64	− 2.14	Jennings	4.18	Reserve	0.00
Maryland and Delaware	49.6	+ 4.6	Annapolis, Md	85	1	Keedysville, Md.	19 30	1.33	− 1.27	Sudlersville, Md	2.87	Cumberland, Md	0.27
Michigan	41.6	+ 6.3	Allegan	78	1	Watersmeet	− 4 23	3.47	+ 1.08	Ironwood	6.80	Blaney	0.54
Minnesota	33.8	+ 4.8	Montevideo	82	3	Fosston	−14 15	2.68	+ 1.83	Grand Meadow	7.82	Hallock	0.27
Mississippi	61.4	+ 6.6	4 stations	88	4	Lake	21 19	1.86	− 1.83	Hernando	6.48	Leakesville	0.20
Missouri	53.6	+ 9.3	3 stations	87	3,4	Avalon	11 18	4.43	+ 2.16	Neosho	12.52	Warrensburg	1.63
Montana	33.8	+ 2.4	3 stations	78	5 d't's	Augusta	−26 14	1.96	+ 0.61	Snowshoe	27.92	Adams	0.14
Nebraska	40.0	+ 3.2	Holdrege	88	3	Mitchell	−10 16	2.73	+ 1.55	Dubois	9.98	Enderslake	0.30
Nevada	40.1	+ 0.8	Carlsbad	87	4	Elko	−10 16	1.51	+ 0.74	Clover Valley	5.75	Willow Point	0.20
New England*	41.6	+ 3.6	Voluntown, Conn.	78	12	Bloomfield, Vt	9 30	2.96	− 1.22	Plymouth, Mass	6.80	Amherst, Mass	1.06
New Jersey	46.4	+ 3.3	Clayton	80	1	Layton	17 28	2.36	− 0.84	Trenton	4.33	Runyon	1.32
New Mexico	45.2	+ 2.3	Tucumcari	85	4	Red River Canyon	− 8 16	0.57	− 0.36	Tucumcari, No. 2	2.47	Many stations	0.00
New York	41.7	+ 4.8	Elmira	80	1	Plattsburg	− 4 26	1.99	− 0.92	Adam's Center	4.57	West Berne	0.40
North Carolina	54.6	+ 4.8	Goldsboro	87	1	Banners Elk	14 19	0.76	− 2.06	Beaufort	2.52	Pinehurst	T.
North Dakota	29.4	+ 3.0	Haley	88	3	McKinney	−23 21	0.43	− 0.18	Power	1.85	Amenia	T.
Ohio	48.9	+ 8.2	3 stations	80	13,14	Bladensburg	15 24	2.52	− 0.18	Bowling Green	4.86	Milligan	0.75
Oklahoma	55.8	+ 6.6	Chattanooga	90	9	Chandler	18 16	5.70	+ 3.30	Gage	11.43	Kenton	1.52
Oregon	43.2	0.0	Heppner	78	3	Granite	− 8 15	10.77	+ 6.07	Glenora	57.00	Telocaset	0.12
Pennsylvania	46.4	+ 5.8	Clearfield	80	1	Skidmore	15 24	1.40	− 1.54	Ottsville	3.97	Hyndman	0.26
Porto Rico	76.2	− 0.6	Arecibo	98	3	Cayey	54 30	13.90	+ 5.53	San Salvador	25.41	Caho Rojo	5.23
South Carolina	58.3	+ 4.2	Spartanburg	88	6	Bowman	20 19	0.97	− 1.40	Kingstree	2.88	Jacksonboro	T.
South Dakota	34.6	+ 2.5	Greenwood	86	4	La Delle	−12 17	1.30	+ 0.87	Vermilion	4.53	Englewood	0.34
Tennessee	56.3	+ 8.1	Jackson	88	4	Mountain City	−16 19	2.14	− 1.55	Covington	7.09	Bluff City	0.16
Texas	63.7	+ 6.5	Tilden	99	3	Texline	13 30	2.72	+ 0.35	Alvin	9.49	Llano Grande	0.00
Utah	40.0	+ 0.7	Spanish F'k Canyon	87	7	Marysvale	11 16	2.37	+ 1.19	Huntsville	6.15	Mount Pleasant	0.36
Virginia	51.2	+ 4.8	Lincoln	81	12	Marion	12 19	0.78	− 1.61	Big Stone Gap	1.86	Radford	0.11
Washington	41.3	+ 0.4	Sunnyside	76	25	Republic	6 15	9.54	+ 3.27	Quinault	42.29	Irene Mountain	0.90
West Virginia	49.1	+ 6.2	Logan	84	11	Weston	12 25	1.34	− 1.31	Pickens	3.85	Moorefield	0.23
Wisconsin	39.8	+ 7.3	Downing	75	10	Hillsboro	− 9 23	3.61	+ 1.87	Merrill	5.89	Plum Island	1.53
Wyoming	33.6	+ 2.8	Fort Laramie	79	3	Moorcroft	−22 16	1.49	+ 0.71	Rambler	6.05	Laramie	0.29

*Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. †Other dates also.

TABLE I.—*Climatological data for U. S. Weather Bureau stations, November, 1909.*

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.									Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.				Total.	Departure from normal.	Days with .01. or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					
New England.							**42.9**	**+ 3.5**										**76**	**2.94**	**− 0.6**									**6.6**	
Eastport	76	67	85	30.02	30.11	+ .10	40.0	+ 3.2	57	3	46	20	19	34	24	38	34	81	3.62	− 0.5	13	10,252	nw.	70	ne.	25	6	7	17	7.4	2.4
Greenville	1,070	6	....	28.94	30.14	....	34.3	....	62	12	43	12	19	26	30	....	....	....	4.57	....	13	....	....	....	....	....	....	....	....	....	6.2
Portland, Me.	103	81	117	30.02	30.14	+ .10	41.0	+ 3.4	66	12	48	22	30	34	26	37	33	75	2.83	− 1.0	9	6,732	n.	35	n.	24	7	11	12	6.1	2.8
Concord	288	70	79	29.83	30.15	+ .09	40.8	+ 4.0	74	12	50	17	10	31	35	....	....	....	2.12	− 1.3	8	3,846	nw.	23	nw.	26	8	5	17	6.4	T.
Burlington	404	11	48	29.71	30.17	+ .12	38.4	+ 4.7	65	12	46	11	30	31	32	....	....	....	1.66	− 0.9	13	10,451	s.	50	s.	8	5	8	17	7.5	5.2
Northfield	876	16	70	29.20	30.18	+ .13	36.2	+ 4.2	70	12	46	7	30	27	34	33	30	85	2.02	− 0.6	18	6,488	n.	36	nw.	21	5	6	19	7.4	7.4
Boston	125	115	188	30.00	30.14	+ .09	46.4	+ 5.2	76	12	54	27	30	39	31	42	37	76	4.11	0.0	9	7,510	sw.	38	ne.	24	6	8	16	6.4	T.
Nantucket	12	14	90	30.11	30.12	+ .07	47.2	+ 2.6	66	12	52	31	19	42	17	45	41	82	6.39	+ 3.1	9	14,032	ne.	67	ne.	24	5	9	16	7.1	T.
Block Island	26	11	46	30.10	30.14	+ .08	47.0	+ 1.7	64	12	52	29	30	42	18	43	39	76	3.15	− 0.7	10	14,938	sw.	72	ne.	24	9	7	14	6.0	T.
Narragansett	....	9	....	....	....	....	41.4	− 0.9	76	12	54	16	10	29	40	....	....	....	4.36	....	10	....	....	....	....	....	13	6	11	....	T.
Providence	160	141	165	29.97	30.15	+ .08	45.2	+ 4.8	75	12	54	24	19	37	29	40	36	75	2.95	− 1.2	8	7,759	n.	36	ne.	24	8	11	11	5.8	T.
Hartford	159	122	140	29.98	30.16	+ .08	44.8	+ 5.3	74	12	53	25	10	36	31	39	34	70	2.01	− 1.8	9	6,328	n.	34	nw.	18	4	13	13	6.8	1.9
New Haven	106	116	155	30.03	30.14	+ .07	46.2	+ 4.9	73	12	54	26	19	39	28	41	35	68	1.51	− 2.1	6	7,578	n.	48	ne.	24	8	11	11	5.7	0.1
Mid. Atlantic States.							**49.2**	**+ 4.7**										**72**	**1.14**	**− 1.7**									**4.8**	
Albany	97	102	115	30.07	30.18	+ .10	42.6	+ 4.2	68	12	50	22	30	35	30	37	33	74	1.04	− 1.8	7	6,922	s.	30	s.	23	9	10	11	5.9	0.4
Binghamton	871	78	90	29.24	30.19	+ .10	43.0	+ 5.4	76	1	52	19	25	34	40	....	....	....	0.58	− 1.7	9	4,668	nw.	27	s.	22	11	3	16	6.5	3.2
New York	314	108	350	29.82	30.16	+ .07	47.7	+ 3.7	74	12	54	30	25	41	26	43	39	73	1.58	− 1.9	6	9,232	nw.	48	w.	17	11	11	8	5.1	1.0
Harrisburg	374	94	104	29.80	30.22	+ .11	48.2	+ 6.5	75	1	57	29	24	40	34	41	35	69	0.41	− 1.9	5	5,704	w.	38	w.	17	10	8	12	5.6	0.2
Philadelphia	117	116	184	30.07	30.20	+ .10	50.2	+ 5.3	77	1	57	32	25	43	25	44	38	69	3.50	+ 0.4	7	7,954	nw.	40	ne.	24	13	8	9	4.6	T.
Scranton	805	111	119	29.31	30.20	+ .11	45.2	+ 6.1	77	1	54	23	25	37	36	39	35	73	1.33	− 1.0	9	5,540	sw.	30	w.	17	10	5	15	5.9	5.9
Atlantic City	52	37	48	30.13	30.19	+ .09	48.2	+ 2.7	73	12	54	29	30	42	26	44	39	74	1.93	− 1.3	9	6,734	nw.	36	ne.	24	13	6	11	5.0	....
Cape May	17	48	52	30.19	30.21	+ .11	49.2	+ 1.8	67	12	55	30	30	44	19	45	41	81	2.06	− 1.2	9	7,066	n.	33	n.	4	9	13	8	5.2	T.
Baltimore	123	100	113	30.07	30.20	+ .09	51.5	+ 5.7	78	2	60	32	25	43	31	44	38	66	1.15	− 1.8	7	5,397	s.	33	n.	29	10	11	9	5.0	T.
Washington	112	62	85	30.08	30.20	+ .08	50.8	+ 5.8	77	2	61	29	28	40	37	43	37	66	0.89	− 1.8	6	5,886	s.	34	nw.	4	17	7	6	4.0	1.5
Cape Henry	18	9	58	30.19	30.21	+ .11	54.2	+ 2.1	78	1	61	32	19	48	25	....	....	....	0.49	− 2.2	7	11,522	n.	56	n.	24	17	4	9	3.7	....
Lynchburg	681	83	88	29.48	30.23	+ .10	52.5	+ 6.4	77	12	65	26	30	40	42	45	39	70	0.52	− 2.3	5	3,066	nw.	27	nw.	4	16	8	6	4.3	T.
Mount Weather	1,725	10	54	28.34	30.20	+ .08	47.3	+ 6.9	70	2	55	24	24	40	31	42	36	73	0.97	− 1.9	7	11,957	nw.	54	nw.	26	13	11	6	4.3	2.8
Norfolk	91	102	111	30.12	30.22	+ .11	55.0	+ 3.8	76	1	63	31	19	47	31	48	43	71	0.52	− 2.2	4	7,336	n.	34	nw.	18	16	6	8	3.7	....
Richmond	144	145	153	30.07	30.22	+ .10	53.1	+ 4.3	75	2	63	25	19	43	31	....	....	....	0.62	− 1.8	5	7,239	s.	38	n.	23	13	13	4	4.2	T.
Wytheville	2,293	40	47	27.82	30.25	+ .12	47.8	+ 4.8	71	15	66	21	19	35	42	40	36	77	0.57	− 2.5	6	3,880	w.	26	w.	17	16	9	5	3.6	T.
S. Atlantic States.							**58.5**	**+ 4.4**										**75**	**0.84**	**− 2.1**									**3.6**	
Asheville	2,255	53	75	27.87	30.27	+ .13	51.0	+ 5.9	75	5	64	21	19	38	42	43	38	71	0.07	− 3.2	4	5,712	se.	30	nw.	23	20	7	3	3.2	T.
Charlotte	773	68	76	29.40	30.25	+ .12	56.2	+ 5.8	77	4	67	30	19	46	32	48	42	68	0.44	− 2.4	3	5,007	ne.	23	w.	21	15	10	5	3.6	....
Hatteras	11	12	47	30.19	30.20	+ .09	58.8	+ 2.1	78	2	65	40	19	53	20	55	52	83	2.24	− 2.4	8	10,977	n.	49	nw.	24	21	5	4	3.3	....
Manteo	12	12	46	....	....	....	56.2	....	77	2	65	30	19	48	....	....	....	....	1.22	− 3.4	5	....	n.	....	....	....	21	3	6	....	....	....
Raleigh	376	103	110	29.82	30.23	+ .10	55.4	+ 5.2	76	6	66	30	19	45	32	47	40	66	0.11	− 2.2	4	5,919	ne.	32	sw.	22	13	12	5	4.4	....
Wilmington	78	81	91	30.15	30.23	+ .11	58.4	+ 4.3	78	2	68	33	19	48	31	51	47	77	0.57	− 1.9	5	5,054	n.	28	w.	17	15	12	3	3.4	....
Charleston	48	14	92	30.17	30.22	+ .10	61.4	+ 3.3	83	4	69	38	19	53	27	55	52	78	2.44	− 0.4	7	6,495	n.	34	ne.	6	14	11	5	3.8	....
Columbia, S. C.	351	41	57	29.85	30.24	+ .12	58.0	+ 4.2	83	4	71	29	19	46	34	50	44	70	0.42	− 1.8	4	4,524	ne.	26	sw.	17	13	11	6	4.4	....
Augusta	180	89	97	30.04	30.23	+ .10	58.6	+ 4.7	83	4	71	29	19	46	37	50	46	76	0.62	− 2.3	2	3,666	nw.	24	w.	23	16	11	3	3.3	....
Savannah	65	81	89	30.16	30.23	+ .11	62.6	+ 5.1	84	4	72	38	19	54	27	55	50	74	0.11	− 2.3	3	7,791	ne.	29	e.	10	14	14	2	3.6	....
Jacksonville	43	96	129	30.15	30.20	+ .10	64.8	+ 3.5	84	4	74	40	24	56	29	58	56	84	0.99	− 1.2	9	6,065	ne.	27	sw.	17	15	13	2	3.5	....
Florida Peninsula.							**71.0**	**+ 0.6**										**76**	**0.53**	**− 1.9**									**3.4**	
Jupiter	28	10	46	30.10	30.12	+ .07	72.0	+ 0.4	82	17	78	51	25	66	22	65	61	71	0.98	− 2.1	10	10,392	e.	36	e.	8	7	22	1	4.8	....
Key West	22	10	53	30.07	30.09	+ .07	73.4	− 0.9	82	6	78	62	26	69	13	67	65	78	0.06	− 2.3	1	6,978	ne.	25	e.	6	21	8	1	2.6	....
Sand Key	25	41	71	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Tampa	35	79	96	30.13	30.17	+ .09	67.6	+ 2.2	86	5	78	46	19	57	29	60	57	80	0.56	− 1.2	4	5,761	ne.	33	e.	7	19	10	1	2.7	....
East Gulf States.							**62.0**	**+ 0.2**										**73**	**1.11**	**− 2.4**									**3.2**	
Atlanta	1,174	190	216	28.99	30.24	+ .11	58.2	+ 6.3	78	4	67	30	19	49	28	50	44	67	1.48	− 1.9	5	8,261	e.	52	sw.	22	19	6	5	3.1	....
Macon	370	78	87	29.83	30.23	+ .10	59.0	+ 5.7	84	4	72	28	19	46	40	....	....	....	0.61	− 2.5	3	4,094	ne.	24	w.	23	21	5	4	2.8	....
Thomasville	273	8	57	29.92	30.22	+ .10	62.5	+ 4.0	86	4	76	28	19	49	41	53	50	79	1.39	− 1.2	2	3,492	e.	21	sw.	23	14	10	6	4.1	....
Pensacola	56	79	96	30.14	30.20	+ .09	64.4	+ 4.8	80	6	72	38	24	57	27	....	....	....	0.88	− 2.9	3	8,669	se.	24	se.	10	10	9	2	2.6	....
Anniston	741	9	57	29.46	30.26	+ .14	59.0	+ 7.1	82	4	71	27	19	47	37	....	....	....	1.69	− 1.7	4	4,214	se.	30	w.	22	18	6	6	3.5	....
Birmingham	700	11	48	29.47	30.24	+ .12	61.4	+ 7.3	82	4	72	31	18	51	31	51	45	64	1.05	− 2.3	3	5,277	s.	30	s.	16	11	15	4	4.4	....
Mobile	57	98	106	30.13	30.19	+ .08	64.6	+ 6.1	82	2	75	36	19	54	30	57	54	76	0.50	− 3.2	7	4,518	n.	23	nw.	17	21	8	1	2.1	....
Montgomery	223	100	112	29.98	30.23	+ .11	61.5	+ 5.8	84	5	74	30	19	49	36	52	46	66	0.92	− 2.2	6	3,652	e.	23	w.	22	21	7	2	2.4	....
Meridian	375	84	93	29.80	30.21	+ .09	59.8	+ 6.6	82	4	73	27	19	46	38	51	48	76	0.71	− 3.4	3	3,241	s.	26	sw.	22	16	11	3	3.7	....
Vicksburg	247	62	74	29.91	30.19	+ .07	63.8	+ 7.9	81	7	74	35	19	53	30	54	49	69	1.75	− 2.4	5	5,000	se.	26	sw.	22	13	12	5	2.8	....
New Orleans	51	90	121	30.12	30.18	+ .08	67.4	+ 6.8	83	1	76	45	24	59	22	61	59	86	1.18	− 2.6	6	5,379	e.	28	se.	14	21	6	3	2.8	....
West Gulf States.							**64.4**	**+ 3.6**										**74**	**2.10**	**− 1.0**									**4.7**	
Shreveport	249	77	84	29.88	30.16	+ .05	62.8	+ 7.5	82	6	74	34	18	52	39	55	51	74	0.77	− 3.3	8	5,365	se.	29	w.	22	14	7	9	4.7	....
Bentonville	1303	11	44	28.72	30.10	− .01	57.8	+11.1	83	4	68	24	18	47	37	....	....	....	2.43	− 0.6	10	5,431	s.	30	s.	10	19	7	14	5.8	....
Fort Smith	457	79	94	29.62	30.11	.00	59.7	+ 9.8	85	4	70	29	18	49	36	52	47	71	3.15	− 0.1	8	6,527	e.	32	w.	14	10	11	9	5.1	....
Little Rock	357	139	147	29.77	30.15	+ .03	60.3	+ 8.8	84	4	69	32	18	51	33	52	47	68	3.00	− 1.6	6	6,625	s.	34	nw.	22	12	8	10	5.0	....
Brownsville	57	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Corpus Christi	20	69	77	30.06	30.08	+ .01	71.2	+ 8.8	89	22	77	46	18	66	26	67	64	82	0.53	− 1.9	9	11,424	se.	45	se.	13	7	21	2	4.5	....
Fort Worth	670	106	114	29.38	30.10	.00	63.2	+ 8.1	85	3	73	33	18	53	37	....	....	....	5.11	+ 3.5	10	9,049	s.	42	se.	13	12	12	6	4.3	....
Galveston	54	106	112	30.08	30.14	+ .05	70.3	+ 7.4	79	5	74	48	18	66	20	65	62	78	1.89	− 2.1	5	8,804	se.	30	se.	13	12	17	1	3.6	....
Palestine	510	73	79	29.59	30.12	+ .01	64.7	+ 7.8	82	3	74	35	18	53	30	58	54	76	1.51	− 2.1	7	6,320	se.	32	se.	13	12	11	7	4.8	....
San Antonio	701	80	91	29.34	30.07	− .01	68.2	+ 9.0	86	5	78	39	18	58	32	60	56	72	0.53	− 1.2	6	5,268	se.	32	nw.	13	11	12	7	4.8	....
Taylor	583	55	63	29.48	30.10	+ .02	65.6	+ 7.9	83	11	75	35	18	56	32	....	....	....	2.10	− 0.5	9	7,375	s.	35	nw.	13	13	11	6	4.3	....
Ohio Val. and Tenn.							**53.6**	**+ 3.6**										**70**	**2.00**	**− 1.5**									**5.1**	
Chattanooga	762	106	112	29.43	30.26	+ .12	57.0	+ 6.7	81	4	68	30	19	46	31	48	43	69	1.05	− 2.5	3	5,404	se.	41	nw.	22	17	9	4	3.6	....
Knoxville	996	93	100	29.17	30.24	+ .11	54.2	+ 7.1	77	13	66	27	19	42	33	46	41	70	0.91	− 2.7	4	3,161	sw.	27	sw.	22	15	13	2	3.8	....
Memphis	399	76	97	29.77	30.19	+ .07	60.6	+ 9.2	82	4	69	32	18	52	29	53	47	67	4.87	+ 0.3	6	6,356	s.	42	nw.	22	17	5	8	3.9	....
Nashville	546	168	191	29.63	30.22	+ .10	58.0	+ 9.3	81	5	68	28	18	48	33	50	44	67	2.58	− 1.3	5	7,459	s.	46	w.	22	12	9	9	4.7	....
Lexington	989	75	102	29.14	30.22	+ .10	53.0	+ 8.3	77	6	62	25	18	44	33	....	....	....	1.96	− 1.5	7	8,218	s.	44	w.	22	9	10	11	5.7	T.
Louisville	525	111	132	29.61	30.20	+ .08	55.3	+ 9.0	78	6	65	28	24	46	34	48	42	67	1.73	− 2.4	7	6,153	s.	42	w.	22	13	8	9	4.6	T.
Evansville	431	72	82	29.68	30.16	+ .04	55.5	+10.2	77	5	64	26	18	47	31	....	....	....	2.86	− 1.2	8	6,350	s.	42	s.	1	7	13	10	5.5	....
Indianapolis	822	154	164	29.27	30.17	+ .07	51.0	+ 9.4	76	6	60	26	24	42	32	44	39	70	3.20	− 0.2	12	8,518	s.	40	s.	1	10	8	12	5.4	T.
Cincinnati	628	152	160	29.50	30.20	+ .08	53.1	+ 8.5	77	6	63	27	24	43	36	46	41	69	1.42	− 1.8	6	4,696	se.	36	sw.	22	10	10	10	5.6	T.
Columbus	824	173	222	29.30	30.18	+ .07	49.6	+ 8.2	74	14	58	24	24	41	38	44	40	74	1.66	− 1.4	10	8,428	se.	54	w.	22	7	9	14	6.2	6.1
Pittsburg	842	336	352	29.28	30.20	+ .10	50.4	+ 7.5	73	14	59	23	24	42	31	43	38	68	0.84	− 1.7	9	7,425	s.	48	w.	23	10	8	12	5.8	6.2
Parkersburg	638	77	84	29.55	30.22	+ .10	52.0	+ 8.8	75	14	62	26	25	42	35	44	40	73	0.55	− 2.3	7	4,364	s.	31	w.	22	9	8	13	6.3	T.
Elkins	1,940	41	50	28.16	30.26	+ .14	47.4	+ 7.8	72	13	60	20	30	35	44	39	36	79	2.31	− 0.6	12	2,704	w.	24	w.	17	11	8	11	5.5	T.
Lower Lake Region.							**44.8**	**+ 5.9**										**77**	**3.03**	**0.0**									**6.6**	
Buffalo	767	178	206	29.32	30.16	+ .11	44.8	+ 5.5	70	1	52	22	25	37	30	40	37	76	3.62	+ 0.3	11	11,028	s.	54	w.	17	6	7	17	7.0	4.6
Canton	448	10	71	29.68	30.17	....	37.2	+ 3.3	69	1	46	12	27	29	37	....	....	....	3.35	− 0.1	16	8,454	sw.	54	sw.	17	9	5	16	6.6	7.7
Oswego	335	76	91	29.78	30.16	+ .11	43.4	+ 4.3	75	1	51	22	24	36	29	39	35	76	2.09	− 1.3	16	9,441	s.	37	ne.	25	6	8	16	6.8	6.6
Rochester	523	88	102	29.60	30.19	+ .14	44.6	+ 6.7	75	1	52	24	25	37	28	39	35	74	1.40	− 1.4	14	6,431	sw.	34	w.	17	8	3	19	7.1	1.7
Syracuse	397	97	113	29.52	30.18	+ .12	43.6	+ 4.9	75	1	52	18	25	36	43	....	....	....	1.29	− 1.4	12	9,560	s.	46	s.	16	7	7	16	7.0	4.8
Erie	714	92	102	29.38	30.17	+ .11	46.8	+ 5.7	72	11	54	24	24	39	33	42	37	74	2.60	− 1.0	14	9,909	s.	41	nw.	17	7	11	12	6.3	2.5
Cleveland	762	190	201	29.33	30.16	+ .09	47.6	+ 7.2	72	13	55	30	17	40	35	43	40	78	3.28	+ 0.5	15	12,624	se.	51	sw.	16	8	9	13	6.1	0.8
Sandusky	629	62	70	29.46	30.16	+ .08	48.4	+ 7.6	73	14	56	31	26	42	32	....	....	....	3.67	+ 0.9	10	6,840	sw.	34	n.	22	7	11	12	5.9	T.
Toledo	628	207	246	29.47	30.17	+ .10	46.8	+ 7.1	72	14	55	26	23	39	31	42	39	78	4.34	+ 1.7	13	11,940	sw.	60	w.	16	9	10	11	5.7	T.
Detroit	730	218	258	29.35	30.16	+ .10	44.9	+ 6.3	70	14	52	24	24	37	25	41	38	80	4.70	+ 2.1	8	11,667	s.	57	w.	16	5	6	19	7.1	0.3

TABLE I.—*Climatological data for U. S. Weather Bureau stations, November, 1909*—Continued.

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.										Precipitation, in inches.			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. ÷ 2	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.				
Upper Lake Region.							**40.8**	**+ 6.7**										**82**	**2.98**	**+ 0.6**								**7.3**	
Alpena	609	13	92	29.45	30.13	+ .12	39.8	+ 6.1	67	11	47	10	23	33	28	36	34	85	2.21	− 0.4	9	8,837	se.	36	se.	16	6	4	20	7.3	12.6
Escanaba	612	49	82	29.42	30.10	+ .07	38.3	+ 6.6	58	3	44	16	18	32	25	36	33	82	3.49	+ 1.2	11	8,043	s.	35	ne.	16	3	7	20	7.8	16.0
Grand Haven	632	54	92	29.42	30.12	+ .08	43.4	+ 5.4	67	13	51	16	23	36	25	39	36	81	2.47	− 0.1	17	10,523	se.	50	w.	17	6	11	13	6.3	3.7
Grand Rapids	707	127	162	29.35	30.14	+ .09	44.4	+ 6.3	73	11	53	16	23	36	27	40	36	79	3.23	+ 0.7	14	9,406	se.	44	sw.	16	4	11	15	6.8	1.8
Houghton	668	66	74	29.34	30.08	+ .06	37.1	+ 5.6	65	10	44	20	19	31	34				3.95	+ 1.2	16	4,734	nw.	32	w.	15	3	6	21	8.2	21.4
Marquette	734	77	116	29.28	30.10	+ .08	38.4	+ 6.5	62	7	45	19	18	32	28	35	32	81	4.10	+ 1.3	9	8,829	w.	40	ne.	16	2	9	19	8.2	13.7
Port Huron	638	70	120	29.44	30.14	+ .09	43.2	+ 6.4	68	14	51	19	24	36	25	39	36	80	3.39	+ 0.7	11	9,451	s.	41	w.	16	7	8	15	6.5	2.0
Sault Sainte Marie	614	40	61	29.42	30.14	+ .13	36.8	+ 6.1	61	11	43	6	23	31	22	34	31	83	2.14	− 0.8	12	7,426	se.	47	nw.	15	4	2	24	8.4	3.4
Chicago	823	140	210	29.22	30.12	+ .05	48.4	+ 9.2	71	11	55	28	23	42	28	44	41	78	3.84	+ 1.3	12	12,476	s.	48	w.	16	4	11	15	6.8	T.
Milwaukee	681	122	139	29.37	30.12	+ .07	44.9	+ 8.8	66	11	52	19	23	38	32	41	38	83	2.29	+ 0.3	10	9,871	s.	40	ne.	22	9	10	11	5.8	2.5
Green Bay	617	49	86	29.41	30.08	+ .04	41.4	+ 8.9	65	14	49	15	18	34	30	38	34	81	2.55	+ 0.6	11	8,044	s.	54	w.	11	3	7	20	7.8	9.7
Duluth	1,133	11	47	28.82	30.07	+ .03	33.6	+ 4.3	63	10	40	11	18	27	23	31	29	86	2.16	+ 0.6	10	9,684	sw.	52	ne.	14	5	6	19	7.4	8.5
North Dakota.							**32.4**	**+ 3.6**										**82**	**0.53**	**− 0.2**								**6.3**	
Moorhead	940	8	57	29.02	30.08	+ .01	28.3	+ 3.9	70	10	37	− 2	22	19	34	26	24	87	1.44	+ 0.5	4	7,164	nw.	39	n.	14	8	7	15	6.2	15.8
Bismarck	1,674	8	57	28.25	30.09	+ .02	30.0	+ 4.0	68	3	41	− 4	15	19	40	26	22	80	0.41	− 0.3	7	6,737	nw.	38	nw.	10	7	11	12	6.1	7.1
Devils Lake	1,482	11	44	28.41	30.04	− .02	27.6	+ 4.4	62	6	37	−11	21	17	30	23	20	81	0.26	− 0.4	7	7,983	nw.	36	n.	14	11	7	12	5.9	3.4
Williston	1,872	14	56	27.98	30.02	− .04	28.3	+ 3.1	68	2	39	−10	15	17	41	24	20	79	0.20	− 0.4	5	6,061	sc.	43	w.	2	4	15	11	6.9	2.0
Upper Miss. Valley.							**40.7**	**+ 0.0**										**77**	**3.79**	**+ 1.7**								**6.4**	
Minneapolis	918	102	208				37.6		66	10	45	9	18	30	37				2.74	+ 1.6	8	9,530	s.	40	sw.	14	7	6	17	6.7	11.0
St. Paul	837	171	179	29.14	30.07	+ .01	37.6	+ 6.7	65	10	46	7	18	30	38	34	31	78	2.66	+ 1.4	9	8,305	sc.	42	sc.	10	4	11	15	7.0	9.7
La Crosse	714	11	48	29.28	30.06	− .01	40.2	+ 6.4	67	10	49	11	23	31	39				5.80	+ 4.3	11	4,307	s.	24	sw.	14	6	7	17	7.0	8.6
Madison	974	70	78	29.02	30.10	+ .04	42.6	+ 8.4	68	13	51	15	23	34	35	39	36	82	2.28	+ 0.5	11	9,255	s.	45	sw.	11	5	13	12	6.7	4.3
Charles City	1,015	10	49	28.98	30.08	.00	38.9	+ 5.9	69	4	49	4	25	29	37	36	37	87	6.09	+ 4.7	14	5,862	se.	30	sw.	14	5	7	18	7.4	1.3
Davenport	606	71	79	29.42	30.09	+ .01	46.8	+ 9.3	72	13	56	17	18	37	35	42	38	77	3.92	+ 2.2	12	6,687	e.	31	s.	14	10	9	11	5.5	0.7
Des Moines	861	84	101	29.13	30.05	− .03	44.8	+ 8.0	76	6	54	14	18	35	36	41	37	79	3.71	+ 2.2	11	6,614	s.	40	sw.	11	5	4	21	7.7	1.8
Dubuque	698	100	115	29.35	30.11	+ .04	44.2	+ 8.2	71	13	54	13	23	35	36	40	36	78	2.94	+ 1.1	12	5,339	s.	22	s.	11	9	10	11	6.0	3.5
Keokuk	614	64	78	29.42	30.10	+ .01	50.2	+10.8	79	5	60	17	18	41	29	44	40	77	3.97	+ 2.1	9	6,761	sc.	35	sc.	14	9	9	12	5.6	T.
Cairo	356	87	93	29.78	30.17	+ .05	57.3	+10.4	82	5	66	28	18	48	32	50	44	68	2.58	− 1.4	7	7,230	s.	40	sw.	1	11	7	12	5.6	...
La Salle	536	56	64	29.53	30.11	+ .03	47.2	+ 9.4	72	5	57	20	18	38	31				3.82	+ 1.2	12	7,233	sw.	35	sw.	16	9	8	13	6.2	T.
Peoria	609	11	45	29.44	30.12	+ .03	48.0	+10.5	74	6	58	18	18	38	30	43	40	78	5.53	+ 2.9	12	7,200	s.	37	w.	16	8	14	8	5.5	T.
Springfield, Ill	644	10	91	29.41	30.11	+ .01	50.4	+ 9.7	75	7	59	20	18	42	27	45	41	77	3.70	+ 1.0	9	7,546	s.	29	sw.	16	8	11	11	6.1	...
Hannibal	534	75	109	29.50	30.09	.00	51.4	+10.9	80	5	61	19	18	42	34				2.72	+ 0.8	8	8,136	sw.	36	w.	16	9	9	12	6.3	T.
St. Louis	567	208	217	29.50	30.11	+ .01	54.4	+11.0	78	7	63	24	18	46	34	48	43	71	4.36	+ 1.5	9	8,682	s.	34	nw.	22	10	7	13	6.2	...
Missouri Valley.							**44.1**	**+ 6.6**										**77**	**3.89**	**+ 2.6**								**6.0**	
Columbia, Mo	784	11	84	29.25	30.09	.00	52.6	+10.2	80	5	63	18	18	43	37				5.36	+ 3.0	12	7,182	s.	32	sw.	16	11	7	12	5.5	T.
Kansas City	963	161	181	29.02	30.07	− .02	52.0	+10.5	80	3	61	22	17	43	30	46	41	75	2.86	+ 1.0	15	9,746	s.	36	se.	13	7	8	15	6.5	T.
Springfield, Mo	1,324	98	104	28.69	30.11	+ .01	55.4	+11.0	79	4	65	23	17	46	31	48	44	76	5.67	+ 3.0	10	9,168	se.	38	se.	13	8	12	10	5.4	...
Iola	984	11	50	29.02	30.08	− .01	51.8	+ 8.8	82	4	62	22	18	42	40				3.68	+ 2.3	9	7,021	s.	33	s.	10	11	4	15	6.0	...
Topeka	983	85	101				49.8	+ 8.1	82	4	59	22	18	40	36				5.98	+ 4.7	9	8,240	s.	44	sw.	10	9	7	14	5.7	T.
Lincoln	1,189	11	84	28.79	30.06	− .02	44.2	+ 6.2	80	4	54	15	18	35	39	39	36	81	7.14	+ 6.3	13	8,129	s.	40	sw.	10	7	5	18	7.0	5.9
Omaha	1,105	115	121	28.86	30.07	− .01	43.9	+ 6.2	77	5	52	14	17	36	32	40	37	83	6.24	+ 5.2	13	6,789	s.	30	nw.	20	7	10	13	6.0	5.2
Valentine	2,598	47	54	27.30	30.08	.00	36.0	+ 2.3	78	6	48	1	17	24	47	30	25	74	1.63	+ 0.9	7	6,190	w.	33	w.	10	9	14	7	5.0	16.4
Sioux City	1,135	96	164	28.83	30.07	− .01	39.3	+ 5.0	75	4	48	10	18	30	34	36	32	80	3.02	+ 2.0	15	9,617	se.	46	s.	10	7	8	15	6.3	12.1
Pierre	1,572	70	75	28.37	30.08	.00	35.0	+ 3.4	81	6	45	7	21	26	41	29	23	68	1.24	+ 0.8	8	5,704	e.	38	w.	10	8	11	11	6.2	13.0
Huron	1,306	56	67	28.66	30.10	+ .02	31.7	+ 4.3	76	6	42	0	15	22	42	28	25	82	1.34	+ 0.8	8	8,217	nw.	40	s.	9	8	10	12	6.2	12.6
Yankton	1,233	49	57	28.70	30.04	− .04	37.3	+ 3.8	81	4	48	9	18	27	43				2.50	+ 1.7	11	5,844	nw.	33	se.	10	4	14	12	6.6	25.8
Northern Slope.							**35.0**	**+ 3.0**										**71**	**1.35**	**+ 0.5**								**6.5**	
Havre	2,505	11	44	27.30	30.00	− .03	29.0	− 1.6	66	3	40	−16	15	18	42	26	23	81	1.01	+ 0.2	11	6,399	sw.	46	sw.	28	3	11	16	7.5	9.5
Miles City	2,371	26	48	27.45	30.06	− .01	35.6	+ 4.7	76	3	46	− 5	16	25	43	30	26	76	1.19	+ 0.6	9	3,647	se.	27	w.	2	11	13	6	4.7	7.9
Helena	4,110	8	56	25.73	29.99	− .11	36.2	+ 3.5	68	3	45	− 2	15	27	32	31	25	67	0.51	− 0.2	7	4,698	sw.	44	w.	22	4	12	14	6.9	2.9
Kalispell	2,962	11	34	26.87	29.97	− .10	35.5	+ 3.5	58	3	42	6	14	29	21	32	30	82	2.99	+ 1.1	16	2,716	sw.	33	sw.	30	1	8	21	8.3	4.7
Rapid City	3,234	46	50	26.59	30.08	.00	37.6	+ 4.0	75	3	50	− 2	16	26	45	31	23	63	0.93	+ 0.5	6	4,573	w.	31	se.	8	5	12	13	6.4	10.7
Cheyenne	6,088	56	64	23.98	30.04	− .03	38.6	+ 3.7	70	4	48	10	15	29	36	30	21	58	0.73	+ 0.3	7	7,469	w.	45	w.	20	6	9	15	6.8	6.1
Lander	5,372	26	36	24.62	30.08	− .02	33.3	+ 4.6	67	2	47	− 4	15	20	39	27	20	63	1.42	+ 0.8	4	2,944	sw.	26	sw.	9	7	16	7	5.7	14.2
Sheridan	3,790	9	47	26.06	30.05	...	34.8	...	74	3	49	− 2	15	21	47	28	23	74	0.99	...	9	3,875	nw.	40	nw.	10	6	11	13	6.3	10
Yellowstone Park	6,200	11	48	23.84	30.08	− .03	30.8	+ 1.5	57	5	39	− 1	14	23	29	26	22	71	1.16	− 0.3	14	6,191	sw.	34	s.	18	6	6	18	6.9	4.9
North Platte	2,821	11	51	27.11	30.10	+ .02	38.6	+ 3.5	80	4	51	2	17	26	49	31	27	75	2.24	+ 1.8	6	4,936	w.	28	n.	7	13	6	11	5.3	17.9
Middle Slope.							**48.0**	**+ 5.8**										**70**	**4.08**	**+ 3.1**								**5.3**	
Denver	5,291	129	136	24.72	30.04	− .02	42.7	+ 3.5	75	6	55	9	16	31	39	34	25	57	1.10	+ 0.6	7	5,105	s.	35	sw.	10	9	12	9	5.3	13.5
Leadville	10,242	7	...																											
Pueblo	4,685	80	86	25.30	30.05	.00	43.2	+ 3.9	78	6	57	10	16	30	47	34	26	63	1.53	+ 1.2	6	4,795	nw.	43	ne.	27	11	11	8	4.8	9.8
Concordia	1,398	42	50																											
Dodge City	2,509	44	54	27.44	30.08	+ .01	47.0	+ 6.5	82	3	60	19	16	35	43	39	35	74	5.81	+ 5.3	8	7,103	s.	39	n.	27	13	7	10	4.8	2.2
Wichita	1,358	98	121	28.64	30.09	+ .01	50.8	+ 7.0	83	3	60	22	16	41	36	45	41	77	6.69	+ 5.5	9	9,066	s.	32	s.	10	7	10	13	6.3	
Oklahoma	1,214	10	47	28.78	30.07	− .01	56.1	+ 8.2	84	6	66	29	16	46	32	50	46	77	5.29	+ 3.0	9	12,263	s.	10	s.	10	11	7	12	5.4	
Southern Slope.							**57.1**	**+ 6.2**										**66**	**1.48**	**+ 0.1**								**4.5**	
Abilene	1,738	45	54	28.24	30.06	− .01	60.8	+ 8.2	84	5	72	32	17	50	33	52	46	68	1.96	+ 0.7	5	6,383	s.	35	s.	27	9	15	6	4.9	
Amarillo	3,676	10	49	26.29	30.04	− .01	50.4	+ 6.6	83	6	63	26	16	38	45	42	37	72	3.25	+ 2.1	6	8,456	s.	34	s.	9	16	7	7	4.5	7.4
Del Rio	944	8	57	29.05	30.04	− .01	65.3	+ 6.0	88	1	77	36	18	53	42				0.40	− 1.4	6	6,500	se.	56	nw.	13	11	15	4	4.7	
Roswell	3,578	9	57	26.39	30.05	+ .02	52.0	+ 3.9	83	4	69	18	18	35	51	40	32	59	0.29	− 0.9	4	4,681	se.	32	nw.	12	16	10	4	3.8	T.
Southern Plateau.							**49.9**	**+ 0.9**										**52**	**0.53**	**− 0.3**								**2.7**	
El Paso	3,762	110	133	26.22	29.99	− .01	56.2	+ 5.3	81	6	70	25	30	43	36	42	25	34	T.	− 0.6	0	7,479	nw.	43	sw.	10	21	8	1	2.0	
Santa Fe	7,013	8	56	23.27	30.07	+ .04	41.0	+ 2.8	66	2	53	15	30	29	33	30	19	48	1.02	+ 0.2	3	7,117	ne.	32	w.	15	17	11	2	3.3	13.7
Flagstaff	6,907	8	57	23.37	30.05	+ .03	35.1	+ 0.5	67	4	51	4	17	19	46	28	21	66	1.51	+ 0.1	5	5,339	sw.	40	sw.	9	16	8	6	4.0	10.9
Phoenix	1,108	50	56	28.83	30.00	+ .02	59.2	+ 0.5	92	3	75	34	16	44	46	50	44	64	0.28	− 0.7	2	2,340	e.	24	w.	26	22	7	1	2.5	
Yuma	141	9	58	29.86	30.02	+ .04	60.6	− 1.3	91	3	76	35	29	45	46	47	36	49	0.18	− 0.1	1	4,413	n.	30	n.	28	26	3	1	1.1	
Brawley	†105	11	31	30.12	30.00	...	60.0	...	93	3	77	34	29	44	49				0.21	...	1	3,880	w.	36	sw.	9	20	7	3	2.6	
Independence	3,910	11	42	26.02	30.04	− .01	47.0	− 2.2	71	2	62	21	16	32	39	38	28	54	0.19	− 0.8	4	4,340	n.	36	s.	9	18	8	4	3.2	1.3
Middle Plateau.							**39.7**	**+ 0.6**										**66**	**1.69**	**+ 0.7**								**5.5**	
Reno	4,532	56	63	25.50	30.08	− .03	41.1	+ 0.1	72	3	52	5	16	30	40	34	28	64	1.30	+ 0.2	7	4,133	w.	31	sw.	19	7	13	10	5.5	12.0
Tonopah	6,090	12	20	24.08	30.04	...	39.5	...	66	2	46	16	27	32	23	32	24	58	2.39	+ 1.5	7	5,580	se.	35	se.	8	12	12	6	4.5	23.0
Winnemucca	4,344	18	56	25.65	30.09	− .05	40.2	+ 2.7	71	3	51	12	16	29	45	35	31	79	1.85	+ 1.1	10	5,543	sw.	33	sw.	22	5	8	17	6.8	5.6
Modena	5,479	10	43	24.64	30.09	+ .01	35.6	− 3.4	71	3	49	− 7	16	22	47	29	22	67	1.96	+ 1.0	9	6,850	w.	47	sw.	9	10	11	9	5.1	11.7
Salt Lake City	4,360	105	110	25.64	30.05	− .07	44.0	+ 3.6	69	5	52	24	16	36	26	37	31	65	1.46	0.0	8	4,513	se.	48	s.	9	8	5	17	6.6	T.
Durango	6,546	18	56	23.68	30.10	+ .04	36.8	− 0.4	68	4	50	5	16	24	40	29	23	68	1.81	+ 0.7	7	3,783	nw.	27	s.	15	13	11	6	4.5	15.3
Grand Junction	4,608	43	51	25.42	30.05	− .03	40.8	+ 0.9	68	9	52	20	16	30	37	33	26	62	1.05	+ 0.4	5	3,015	e.	37	sw.	9	11	5	14	5.4	1.1
Northern Plateau.							**41.9**	**+ 3.2**										**73**	**3.04**	**+ 1.6**								**7.7**	
Baker City	3,471	48	58	26.42	30.05	− .11	38.4	+ 3.5	66	3	45	7	15	31	26	35	30	74	1.90	+ 0.7	19	4,509	se.	27	sw.	23	5	6	19	7.2	3.5
Boise	2,739	78	86	27.20	30.09	− .08	44.0	+ 4.4	69	4	51	21	15	37	27	39	34	72	3.41	+ 2.6	16	3,262	nw.	26	nw.	23	4	8	18	7.7	2.0
Lewiston	757	10	51	29.19	30.01	− .11	44.2	+ 3.3	67	22	51	20	15	37	27				3.49	+ 2.2	19	4,111	e.	39	nw.	30	1	7	22	8.3	
Pocatello	4,477	46	54	25.49	30.07	− .03	39.4	+ 3.1	68	4	48	16	17	31	30	34	28	68	2.80	+ 2.2	13	6,640	se.	34	sw.	20	6	8	16	7.1	1.4
Spokane	1,929	91	110	27.92	30.00	− .10	40.0	+ 2.7	58	3	46	16	15	35	22	37	34	78	2.69	+ 0.4	16	5,936	s.	35	sw.	22	4	3	23	8.1	0.6
Walla Walla	1,000	71	79	28.93	30.02	− .11	45.2	+ 2.3	67	2	52	16	16	38	32	40	36	72	3.98	+ 1.8	20	5,362	s.	32	s.	29	3	7	20	8.0	3.3
N. Pac. Coast Reg.							**45.6**	**+ 0.5**										**87**	**12.93**	**+ 5.7**								**3.2**	
Blaine	58	4	...																											
North Head	211	11	56	29.71	29.94	− .11	46.6	− 1.1	55	1	50	33	15	43	12	45	44	93	13.97	+ 7.6	26	16,566	se.	90	se.	18	3	3	24	8.4	

TABLE I.—*Climatological data for U. S. Weather Bureau stations, November, 1909*—Continued.

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.									Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.			Wind.				Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.				Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.				
N.P.Coast Reg.-Con.																													
Port Crescent	259	8	53	29.62	29.90	− .10	41.6	− 0.7	58	22	48	23	15	36	19	....	....	....	15.37	+ 7.9	23	4,127	s.	35	s.	28	3	8	19	7.5	T.
Seattle	123	185	224	29.82	29.95	− .09	45.5	+ 1.0	59	28	50	29	15	41	16	44	43	90	9.11	+ 3.2	22	7,612	s.	56	s.	18	2	4	24	8.1	
Tacoma	213	113	120	29.72	29.95	− .09	45.3	+ 1.2	60	28	50	25	15	40	21	44	42	89	14.73	+ 6.2	24	5,964	sw.	34	sw.	18	2	2	26	8.7	
Tatoosh Island	86	7	57	29.76	29.86	− .11	45.5	− 0.4	55	3	49	35	25	42	15	43	41	83	16.52	+ 4.4	24	14,386	e.	68	s.	28	3	5	22	7.9	T.
Portland, Oreg.	153	68	106	29.84	30.00	− .10	47.2	+ 1.6	63	22	52	28	15	42	19	44	42	82	12.49	+ 6.0	24	5,594	s.	39	sw.	29	2	6	22	8.4	
Roseburg	510	9	57	29.49	30.05	− .07	47.5	+ 1.9	71	2	54	27	16	41	23	45	43	86	8.70	+ 4.3	24	2,012	s.	19	ne.	13	1	5	24	8.2	
Mid. Pac. Coast Reg.							**53.2**	**− 0.3**										**76**	**3.74**	**+ 0.9**									**5.3**	
Eureka	62	62	80	30.03	30.10	− .01	52.0	+ 1.0	66	17	58	34	14	46	23	49	47	84	12.60	+ 6.9	21	5,248	se.	28	se.	7	6	3	21	7.7	
Mount Tamalpais	2,375	11	18	27.63	30.13	+ .04	48.4	.....	69	3	53	33	14	44	15	44	41	80	3.93	+ 1.5	13	13,093	nw.	58	n.	11	12	4	14	5.6	
Point Reyes Light	490	7	18	29.57	30.09	.....	52.4	.....	67	2	56	44	18	49	14	....	....	....	2.73	.....	13	13,607	nw.	62	nw.	13	11	5	14	5.5	
Red Bluff	332	50	56	29.74	30.10	− .01	52.4	− 1.0	76	2	60	32	16	45	26	47	42	73	2.70	− 0.5	8	3,918	nw.	22	nw.	11	10	7	13	5.5	
Sacramento	69	106	117	30.03	30.10	+ .01	53.4	0.0	76	2	61	34	27	46	26	49	44	73	1.32	− 0.8	14	5,020	se.	27	nw.	11	12	4	14	5.6	
San Francisco	155	200	204	29.96	30.13	+ .04	54.8	− 0.7	74	3	60	43	27	50	23	51	47	80	2.43	0.0	12	3,864	w.	28	ne.	12	11	6	13	2.5	
San José	141	12	110	29.98	30.12	.....	53.4	− 1.0	77	3	64	30	16	43	34	....	....	....	1.27	− 0.6	11	3,680	se.	23	nw.	13	14	9	7	4.3	
Southeast Farallon	30	9	17	30.10	30.13	.....	53.2	.....	60	9	56	47	18	51	9	....	....	....	2.13	− 0.4	12	9,295	n.	49	nw.	13	10	5	15	5.7	
S. Pac. Coast Reg.							**56.8**	**− 0.3**										**70**	**2.23**	**+ 1.0**									**3.7**	
Fresno	330	67	70	29.76	30.13	+ .07	53.8	− 0.8	79	4	64	34	12	43	32	48	44	74	2.79	+ 1.8	10	2,562	nw.	20	nw.	26	12	12	6	4.2	
Los Angeles	338	159	191	29.69	30.06	+ .04	60.0	+ 1.6	93	2	70	42	15	50	33	50	41	61	1.51	0.0	7	4,463	sw.	31	nw.	27	16	11	3	3.3	
San Diego	87	94	102	29.96	30.05	+ .03	57.2	− 1.8	85	2	65	42	28	50	29	51	47	76	2.39	+ 1.6	5	4,009	nw.	24	nw.	22	21	4	5	3.0	
San Luis Obispo	201	47	54	29.90	30.11	+ .05	56.2	− 0.1	89	3	67	35	16	46	45	50	44	69	2.24	+ 0.5	8	4,210	nw.	24	ne.	2	14	9	7	4.3	
West Indies.																														
Grand Turk	11	6	20																											
San Juan	82	48	90	29.81	29.89	− .01	77.2	.....	88	3	82	68	30	72	14	72	70	80	11.66	+ 5.2	23	7,457	ne.	36	sw.	13	4	13	13	6.6	
Panama.																														
Cristobal	17	5	60	29.83	29.85	.....	76.5	.....	85	8	81	69	29	72	14	74	74	93	42.50	.....	26	6,129	se.	39	sw.	22	2	12	16	8.0	
Culebra	172	4	30	29.44	29.85	.....	76.4	.....	89	5	82	68	30	70	17	72	72	94	24.46	.....	28	4,591	nw.	30	n.	5	1	2	27	8.0	
Ancon	92	6	69	29.75	29.84	.....	77.0	.....	90	5	83	68	30	71	17	73	73	91	15.14	.....	27	4,891	nw.	26	se.	8	0	7	23	8.0	
Alhajuela	.....	.....	.....																56.22	.....	28									
Bohio	.....	.....	.....																35.39	.....	30									
Gatun	.....	.....	.....																41.10	.....	30									

† Below sea level.

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.80 inch in 1 hour, during November, 1909, at all stations furnished with self-registering gages.*

Stations.	Date.	Total duration. From—	Total duration. To—	Total amount of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Abilene, Tex	13			0.56														0.38			
Albany, N. Y	29			0.14														0.07			
Alpena, Mich	22			0.91														*			
Amarillo, Tex	27			0.57														0.52			
Anniston, Ala	22–23	8:48 p. m.	D. N.	0.66	8:48 p. m.	9:00 p. m.	0.00	0.18	0.31	0.35											
Asheville, N. C	23			0.04														0.02			
Atlanta, Ga	22			0.96														0.50			
Atlantic City, N. J	23			0.29														0.17			
Augusta, Ga	23	D. N.	6:30 a. m.	0.61	3:01 a. m.	3:10 a. m.	0.01	0.24	0.37												
Baker City, Oreg	22			0.59														0.12			
Baltimore, Md	8			0.20														0.16			
Bentonville, Ark	5			0.51														0.43			
Binghamton, N. Y	23			0.12														0.09			
Birmingham, Ala	22	7:40 p. m.	8:30 p. m.	0.51	7:42 p. m.	7:57 p. m.	0.01	0.15	0.39	0.46											
Bismarck, N. Dak	12–13			0.17														*			
Block Island, R. I	3			0.85														0.20			
Boise, Idaho	21–22			0.80														*			
Boston, Mass	25			1.05														0.38			
Buffalo, N. Y	22			1.71														0.48			
Burlington, Vt	24–25			0.55														*			
Cairo, Ill	22			0.58														0.39			
Canton, N. Y	22–23			1.33														*			
Charles City, Iowa	11			1.56														0.25			
Charleston, S. C	6	6:40 p. m.	7:28 p. m.	1.31	6:44 p. m.	7:07 p. m.	0.01	0.14	0.59	0.96	1.21	1.26									
Charlotte, N. C	23			0.35														0.13			
Chattanooga, Tenn	16			0.42														0.24			
Cheyenne, Wyo	12–13			0.37†														*			
Chicago, Ill	22			1.15														0.31			
Cincinati, Ohio	1			0.31														0.31			
Cleveland, Ohio	1			0.28														0.24			
Columbia, Mo	7–8	2:57 p. m.	11:15 a. m.	2.30	8:04 p. m.	8:28 p. m.	0.74	0.14	0.21	0.37	0.45	0.50									
Columbia, S. C	23			0.27														0.12			
Columbus, Ohio	1			0.35														0.29			
Concord, N. H	24–25			1.26														*			
Concordia, Kans																					
Corpus Christi, Tex	13			0.29														0.19			
Davenport, Iowa	7	5:35 p. m.	9:00 p. m.	.092	5:43 p. m.	6:13 p. m.	0.01	0.09	0.16	0.23	0.41	0.56	0.64								
Del Rio, Tex	8			0.10														0.08			
Denver, Colo	12			0.47														*			
Des Moines, Iowa	12–13			1.67														0.31			
Detroit, Mich	1			0.74														*			
Devils Lake, N. Dak	20			0.10														*			
Dodge City, Kans	27–28			2.14														*			
Dubuque, Iowa	15–16			1.19														*			
Duluth, Minn	13–14			1.10														*			
Durango, Colo	14			0.70														*			
Eastport, Me	25			0.89†														0.22			
Elkins, W. Va	8			0.30														0.26			
El Paso, Tex	3, 12			T.														T.			
Erie, Pa	8			0.52														0.16			

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, etc.*—Continued.

Stations.	Date.	Total duration. From—	Total duration. To—	Total amount of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Escanaba, Mich	16-17			1.46†														*			
Eureka, Cal	21			0.85														0.55			
Evansville, Ind	22	11:30 a. m.	3:30 p. m.	0.70	12:52 p. m.	1:02 p. m.	0.02	0.26	0.34												
Flagstaff, Ariz	26-27			0.87														*			
Fort Smith, Ark	7-8	10:33 p. m.	6:19 a. m.	1.42	12:36 a. m.	1:01 a. m.	0.19	0.22	0.47	0.61	0.73	0.81									
Fort Worth, Tex	13	2:35 p. m.	6:30 p. m.	2.33	2:44 p. m.	3:56 p. m.	0.02	0.24	0.51	0.59	0.69	0.87	0.87	0.87	0.87	0.87	0.87	1.37	2.17		
Fresno, Cal	25			1.20														0.41			
Galveston, Tex	8	7:40 p. m.	10:20 p. m.	0.66	7:53 p. m.	8:13 p. m.	0.02	0.21	0.30	0.40	0.47										
Grand Haven, Mich	16			0.79														0.22			
Grand Junction, Colo	14-15			0.46														*			
Grand Rapids, Mich	16			1.34														0.33			
Green Bay, Wis	15-16			0.62														*			
Hannibal, Mo	7			0.18														0.55			
Harrisburg, Pa	8			0.16														0.09			
Hartford, Conn	24-25			0.96														*			
Hatteras, N. C	23	1:45 a. m.	4:55 a. m.	0.69	3:59 a. m.	4:22 a. m.	0.14	0.06	0.15	0.27	0.38	0.49									
Havre, Mont	11-12			0.34														*			
Helena, Mont	13			0.18														*			
Houghton, Mich	13			1.39														*			
Huron, S. Dak	13-14			0.76														*			
Independence, Cal	12			0.10														*			
Indianapolis, Ind	7	10:28 a. m.	2:20 p. m.	0.75	11:00 a. m.	11:16 a. m.	0.03	0.29	0.39	0.45											
Iola, Kans	13			1.04														0.66			
Jacksonville, Fla	9	9:45 p. m.	10:20 p. m.	0.32	9:55 p. m.	10:05 p. m.	0.01	0.20	0.30												
Jupiter, Fla	8			0.50														0.19			
Kalispell, Mont	2-3			0.48														*			
Kansas City, Mo	7	11:38 a. m.	2:10 p. m.	1.30	12:54 p. m.	1:22 p. m.	0.06	0.26	0.50	0.76	0.95	1.07	1.22								
Keokuk, Iowa	7			1.33														*			
Key West, Fla	10			0.06														0.03			
Knoxville, Tenn	16			0.49														0.28			
La Crosse, Wis	11			1.90														0.61			
Lander, Wyo	13-14			0.70														*			
La Salle, Ill	22			0.75														0.29			
Lewiston, Idaho	22			0.72														0.18			
Lexington, Ky	22	4:40 p. m.	8:00 p. m.	0.82	4:51 p. m.	5:10 p. m.	0.01	0.11	0.28	0.36	0.42										
Lincoln, Nebr	12-13			3.29														*			
Little Rock, Ark	14	D. N.	D. N.	0.47	2:52 a. m.	3:05 a. m.	0.03	0.18	0.39	0.44											
Do	22	9:40 a. m.	10:45 a. m.	0.58	10:12 a. m.	10:26 a. m.	0.05	0.17	0.44	0.51											
Los Angeles, Cal	26			0.64														0.39			
Louisville, Ky	22			0.54														0.44			
Lynchburg, Va	23			0.33														0.11			
Macon, Ga	23			0.46														0.38			
Madison, Wis	11			0.25														0.25			
Marquette, Mich	13			1.68														*			
Memphis, Tenn	8	8:25 a. m.	11:50 a. m.	1.10	9:18 a. m.	9:35 a. m.	0.12	0.23	0.48	0.59	0.61										
Meridian, Miss	16			0.44														0.23			
Milwaukee, Wis	22			0.58														*			
Minneapolis, Minn	13-14			1.08†														*			
Mobile, Ala	16-17			0.24														0.15			
Modena, Utah	13-14			0.80														*			
Montgomery, Ala	16			0.37														0.34			
Moorhead, Minn	14			1.26														*			
Mount Tamalpais, Cal	10	2:50 p. m.	D. N.	0.96	6:38 p. m.	7:03 p. m.	0.27	0.08	0.17	0.29	0.39	0.50									
Mount Weather, Va	23			0.35														*			
Nantucket, Mass	2-3	6:50 p. m.	7:20 a. m.	1.57	1:07 a. m.	1:36 a. m.	0.29	0.12	0.27	0.40	0.53	0.56	0.63								
Nashville, Tenn	16	2:38 p. m.	5:40 p. m.	1.06	4:34 p. m.	5:00 p. m.	0.10	0.40	0.48	0.65	0.76	0.87	0.90								
New Haven, Conn	23			0.29														0.08			
New Orleans, La	13	3:25 p. m.	7:10 p. m.	0.51	3:52 p. m.	4:06 p. m.	0.02	0.12	0.27	0.37											
New York, N. Y	23			0.31														0.16			
Norfolk, Va	23			0.28														0.09			
Northfield, Vt	24-25			0.88†														*			
North Head, Wash	7			1.68														0.28			
North Platte, Nebr	15			1.18														*			
Oklahoma, Okla	11-12	11:15 p. m.	D. N.	0.72	11:17 p. m.	11:31 p. m.	0.02	0.07	0.36	0.54											
Omaha, Nebr	12			0.94														0.36			
Oswego, N. Y	4			0.32														0.19			
Palestine, Tex	13			0.29														0.24			
Parkersburg, W. Va	2			0.13														0.11			
Pensacola, Fla	22			0.40														0.39			
Peoria, Ill	7-8	6:15 p. m.	1:15 a. m.	1.46	6:42 p. m.	7:09 p. m.	0.01	0.21	0.41	0.48	0.57	0.65	0.68								
Philadelphia, Pa	23			0.63														0.32			
Phoenix, Ariz	26			0.25														0.19			
Pierre, S. Dak	13-14			0.54														*			
Pittsburg, Pa	16			0.30														0.15			
Pocatello, Idaho	19-20			2.80														*			
Point Reyes Light, Cal	23			0.41														0.14			
Port Huron, Mich	22			1.80														0.38			
Portland, Me	3			0.69														0.22			
Portland, Oreg	9			0.50†														0.34			
Providence, R. I	24-25			1.66														0.28			
Pueblo, Colo	12			0.54														*			
Raleigh, N. C	2			0.03														0.03			
Rapid City, S. Dak	12-13			0.29														*			
Red Bluff, Cal	20			0.72														0.27			
Reno, Nev	13-14			1.11†														*			
Richmond, Va	23			0.48														0.27			
Rochester, N. Y	22			0.39														0.14			
Roseburg, Oreg	22			3.01														0.20			
Roswell, N. Mex	28			0.18														0.04			
Sacramento, Cal	8			0.50														0.17			
Saint Louis, Mo	11			0.78														0.38			
Saint Paul, Minn	13			0.97														0.23			
Salt Lake City, Utah	20-21			0.53														*			
San Antonio, Tex	8			0.38														0.35			
San Diego, Cal	26			0.95														0.40			
Sandusky, Ohio	21-22			1.31														*			
San Francisco, Cal	9			0.48														0.31			
San Jose, Cal	8-9			0.67														*			
San Luis Obispo, Cal	9			1.40														0.50			
Santa Fe, N. Mex	28			0.94														*			
Sault Ste. Marie, Mich	1-2			0.50														*			
Savannah, Ga	2			0.05														0.05			
Scranton, Pa	24-25			0.53														*			

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, etc.*—Continued.

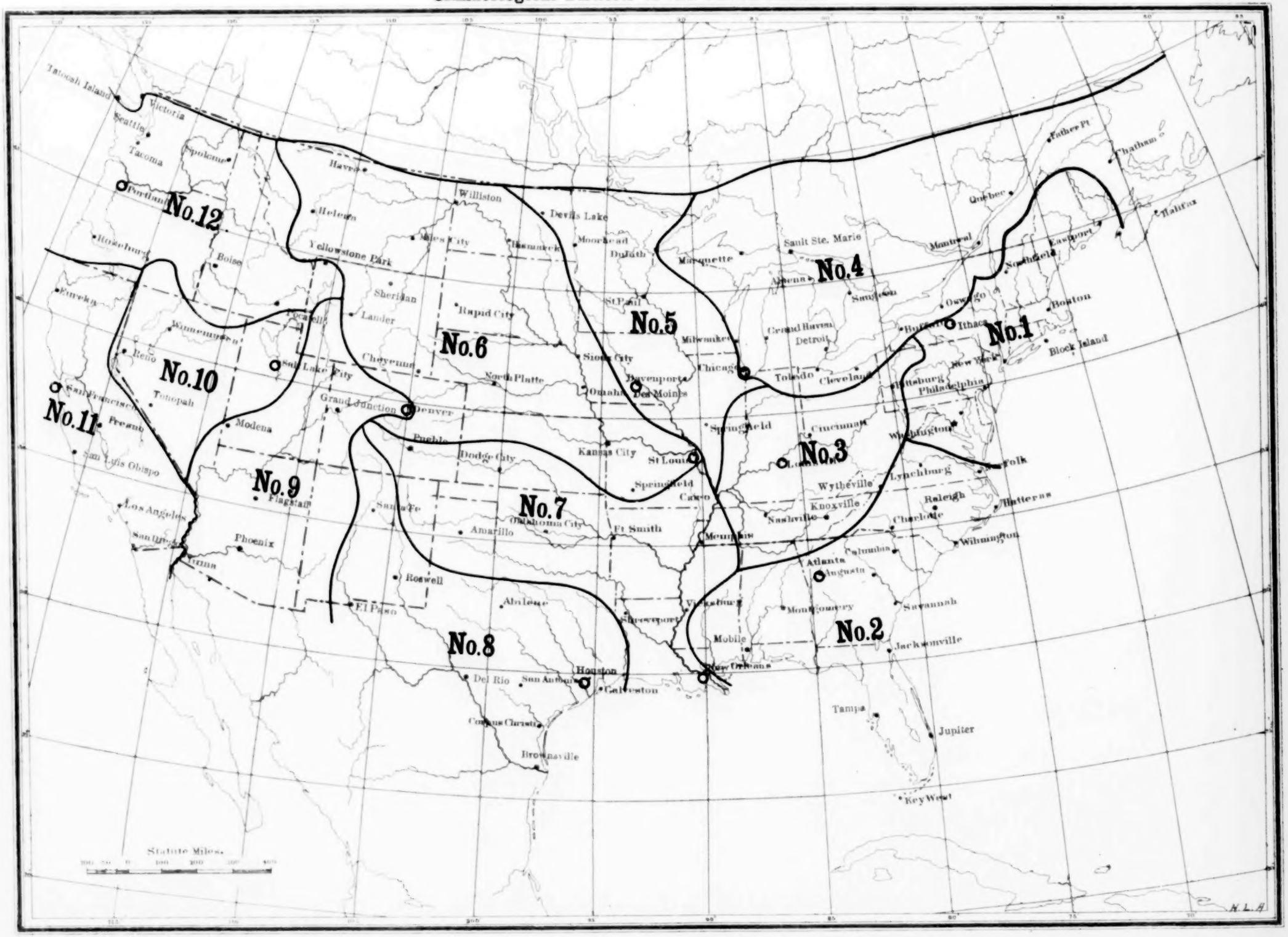
Stations.	Date.	Total duration. From—	Total duration. To—	Total amount of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Seattle, Wash	1			0.88														0.31			
Sheridan, Wyo	30			0.21														0.07			
Shreveport, La	15			0.16														0.16			
Sioux City, Iowa	13–14			1.33														*			
Southeast Farallon, Cal.	8			0.99†														0.18			
Spokane, Wash	4–5			0.54														*			
Springfield, Ill	11			1.13														0.40			
Springfield, Mo	8	D. N.	D. N.	1.56	1:28 a. m.,	2:32 a. m.	0.18	0.08	0.15	0.28	0.35	0.38	0.39	0.43	0.45	0.50	0.55	0.65	0.96	1.14	
Do	11–12	D. N.	8:50 a. m.	2.82	2:32 a. m.	4:04 a. m.	0.47	0.12	0.26	0.34	0.42	0.49	0.53	0.56	0.61	0.66	0.74	0.89	1.17	1.32	
Syracuse, N. Y	24–25			0.38														*			
Tacoma, Wash	1–2	6:35 a. m.	4:10 a. m.	2.12	10:59 p. m.	11:40 p. m.	1.01	0.07	0.14	0.24	0.33	0.42	0.49	0.62	0.70	0.73					
Tampa, Fla	23	5:00 p. m.	6:40 p. m.	0.51	5:33 p. m.	5:46 p. m.	0.04	0.20	0.40	0.46											
Tatoosh Island, Wash	18			1.27														0.41			
Taylor, Tex	13	1:50 p. m.	2:20 p. m.	0.35	2:03 p. m.	2:14 p. m.	0.01	0.14	0.32	0.34											
Thomasville, Ga	23	7:12 p. m.	8:22 p. m.	1.36	7:38 p. m.	7:59 p. m.	0.02	0.47	0.75	0.88	1.31	1.33									
Toledo, Ohio	22			2.35														0.46			
Tonopah, Nev	25–26			0.99														*			
Topeka, Kans	15			1.22														0.42			
Valentine, Nebr	15			0.73														*			
Vicksburg, Miss	22	4:11 p. m.	5-17 p. m.	0.53	4:15 p. m.	4:32 p. m.	0.01	0.09	0.24	0.41	0.44										
Walla Walla, Wash	2			0.72														0.22			
Washington, D. C	23			0.53														0.14			
Wichita, Kans	12–13	8:33 p. m.	8:28 p. m.	4.74	9:04 p. m.	10:46 p. m.	0.25	0.20	0.38	0.70	0.74	0.81	0.88	1.00	1.11	1.21	1.24	1.52	1.80	2.00	2.03
Williston, N. Dak	12–13			0.12														*			
Wilmington, N. C	2			0.29														0.19			
Winnemucca, Nev	20			0.40														0.20			
Wytheville, Va	9			0.18														0.18			
Yankton, S. Dak	15–16			0.69														*			
Yellowstone Park, Wyo	24–25			0.41														*			

* Self-register not working. † Estimated. ‡ No precipitation recorded during month.

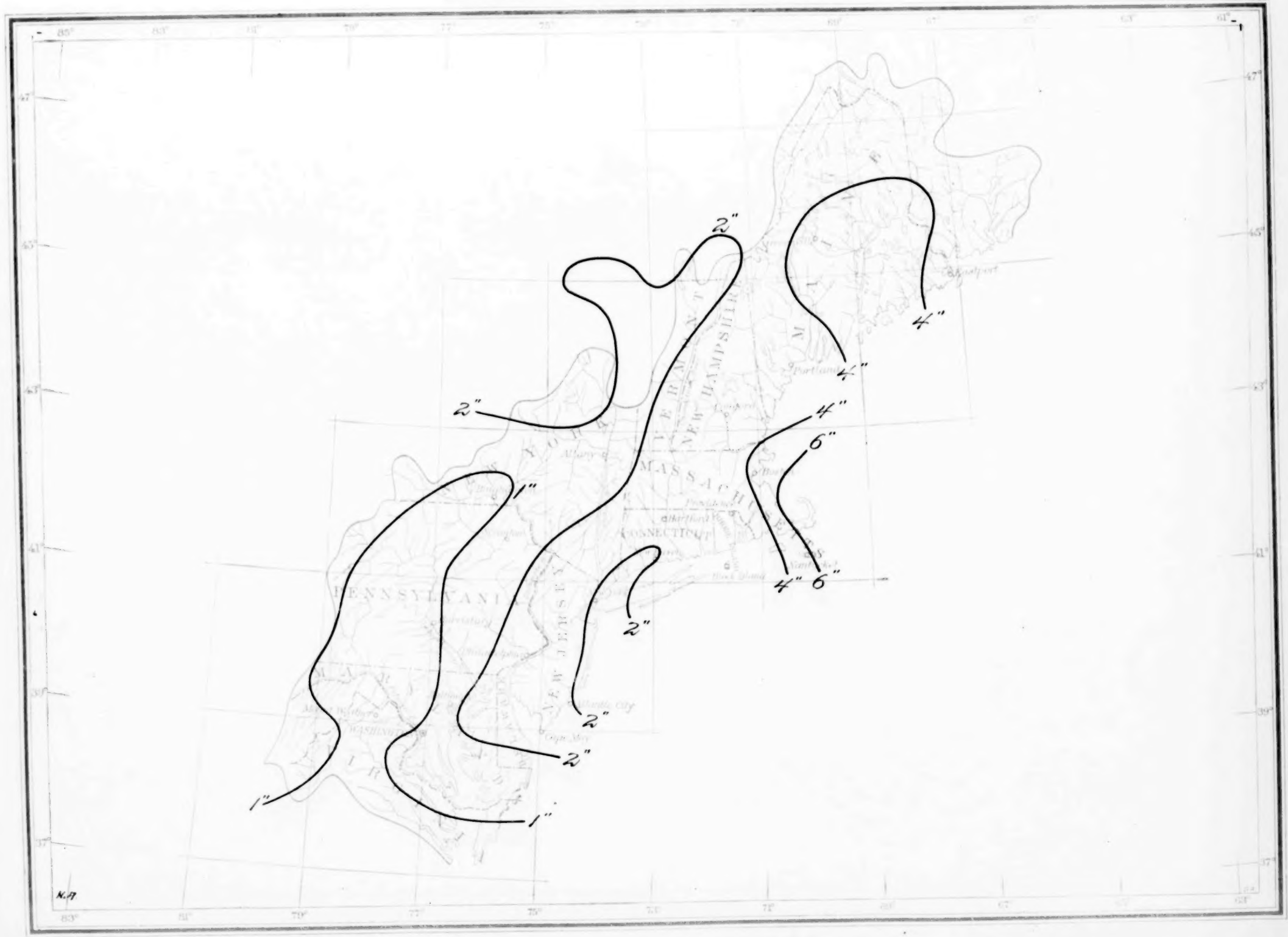
TABLE III.—*Data furnished by the Canadian Meteorological Service, November, 1909.*

Stations.	Pressure. Actual, reduced to mean of 24 hours.	Pressure. Sea level, reduced to mean of 24 hours.	Pressure. Departure from normal.	Temperature. Mean.	Temperature. Departure from normal.	Temperature. Mean maximum.	Temperature. Mean minimum.	Precipitation. Total.	Precipitation. Departure from normal.	Precipitation. Total snowfall.
	Ins.	*Ins.*	*Ins.*	°	°	°	°	*Ins.*	*Ins.*	*Ins.*
St. Johns, N. F	29.82	29.96	+.02	38.9	+ 2.4	44.8	33.0	6.07	+0.50	4.0
Sydney, C. B. I.	30.04	30.08	+.13	40.8	+ 3.7	47.5	34.2	4.88	−0.56	7.0
Halifax, N. S.	30.00	30.11	+.10	40.7	+ 3.4	48.3	33.1	4.99	−0.67	1.2
Grand Manan, N. B.	30.05	30.10	+.09	41.9	+ 3.0	48.1	35.7	4.04	−1.58	2.8
Yarmouth, N. S.	30.04	30.11	+.09	41.9	+ 2.0	49.0	34.7	4.95	+0.39	0.6
Charlottetown, P. E. I.	30.05	30.09	+.13	39.3	+ 3.8	45.1	33.5	2.42	−1.55	2.4
Chatham, N. B.	30.06	30.08	+.11	36.8	+ 5.8	44.1	29.4	4.22	+0.47	7.6
Father Point, Que	30.06	30.08	+.12	32.7	+ 3.8	38.8	26.6	3.38	+0.27	14.7
Quebec, Que	29.80	30.14	+.12	32.9	+ 3.9	38.6	27.1	3.67	−0.09	9.3
Montreal, Que	29.93	30.14	+.11	36.5	+ 4.7	42.7	30.4	4.06	+0.32	9.4
Rockliffe, Ont	29.52	30.15	+.14	34.3	+ 6.2	44.0	24.6	2.51	−0.07	19.2
Ottawa, Ont	29.89	30.23	+.21	35.4	+ 3.7	42.3	28.5	3.86	+1.32	6.7
Kingston, Ont	29.86	30.18	+.14	39.8	+ 4.6	46.5	32.6	3.85	+0.61	3.0
Toronto, Ont	29.77	30.16	+.12	40.6	+ 5.0	48.3	32.8	3.36	+0.22	0.9
White River, Ont	28.70	30.05	+.07	28.9	+ 8.4	36.7	21.1	4.06	+2.21	1.2
Port Stanley, Ont	29.51	30.17	+.12	41.8	+ 5.0	49.8	33.8	4.13	+0.76	1.0
Southampton, Ont	29.44	.....	.....	40.4	+ 5.4	49.3	31.5	3.49	+0.21	6.3
Parry Sound, Ont	29.44	30.15	+.14	37.3	+ 5.2	45.4	29.1	2.79	−1.58	11.0
Port Arthur, Ont	29.36	30.10	+.10	33.6	+ 9.6	40.8	26.4	2.63	+1.30	18.6
Winnipeg, Man	29.24	30.12	+.08	24.8	+ 6.8	33.7	15.9	0.89	−0.19	8.4
Minnedosa, Man	28.15	30.04	.00	21.3	+ 4.0	30.6	12.0	0.72	−0.28	6.2
Qu' Appelle, Assn	27.64	29.96	−.04	19.4	+ 0.6	27.9	10.8	1.24	+0.35	10.6
Medicine Hat, Alberta	27.65	29.99	−.01	25.8	− 1.6	35.1	16.5	0.52	−0.40	5.2
Swift Current, Sask	27.35	29.92	−.10	23.4	+ 0.2	31.3	15.6	0.38	−0.31	3.6
Calgary, Alberta	26.30	29.97	−.01	19.6	− 6.2	27.5	11.6	0.21	−0.67	2.1
Banff, Alberta	25.21	29.96	.00	20.4	− 5.4	27.9	13.0	4.67	+2.40	37.6
Edmonton, Alberta	27.59	29.99	+.02	13.7	− 9.2	24.4	2.9	1.23	+0.65	12.3
Prince Albert, Sask	28.40	30.03	.00	14.8	− 0.6	23.8	5.9	1.40	+0.57	14.0
Battleford, Sask	28.22	30.04	+.02	14.0	− 2.3	22.4	5.5	0.04	−0.54	0.2
Kamloops, B. C.	28.56	29.86	−.10	35.8	+ 2.4	41.5	29.9	0.84	−0.62	4.9
Victoria, B. C.	29.78	29.88	−.11	44.2	+ 1.0	48.1	40.2	11.50	+4.53	0.0
Barkerville, B. C.	25.50	29.90	.00	20.3	− 3.3	26.4	14.2	4.42	+1.13	40.8
Dawson, Yukon	28.99	.....	.....	−9.5	.....	−4.9	−14.0	0.67	.....	6.7
Hamilton, Bermuda	29.98	30.14	+.09	65.8	− 2.9	70.8	60.7	5.22	+0.84	0.0

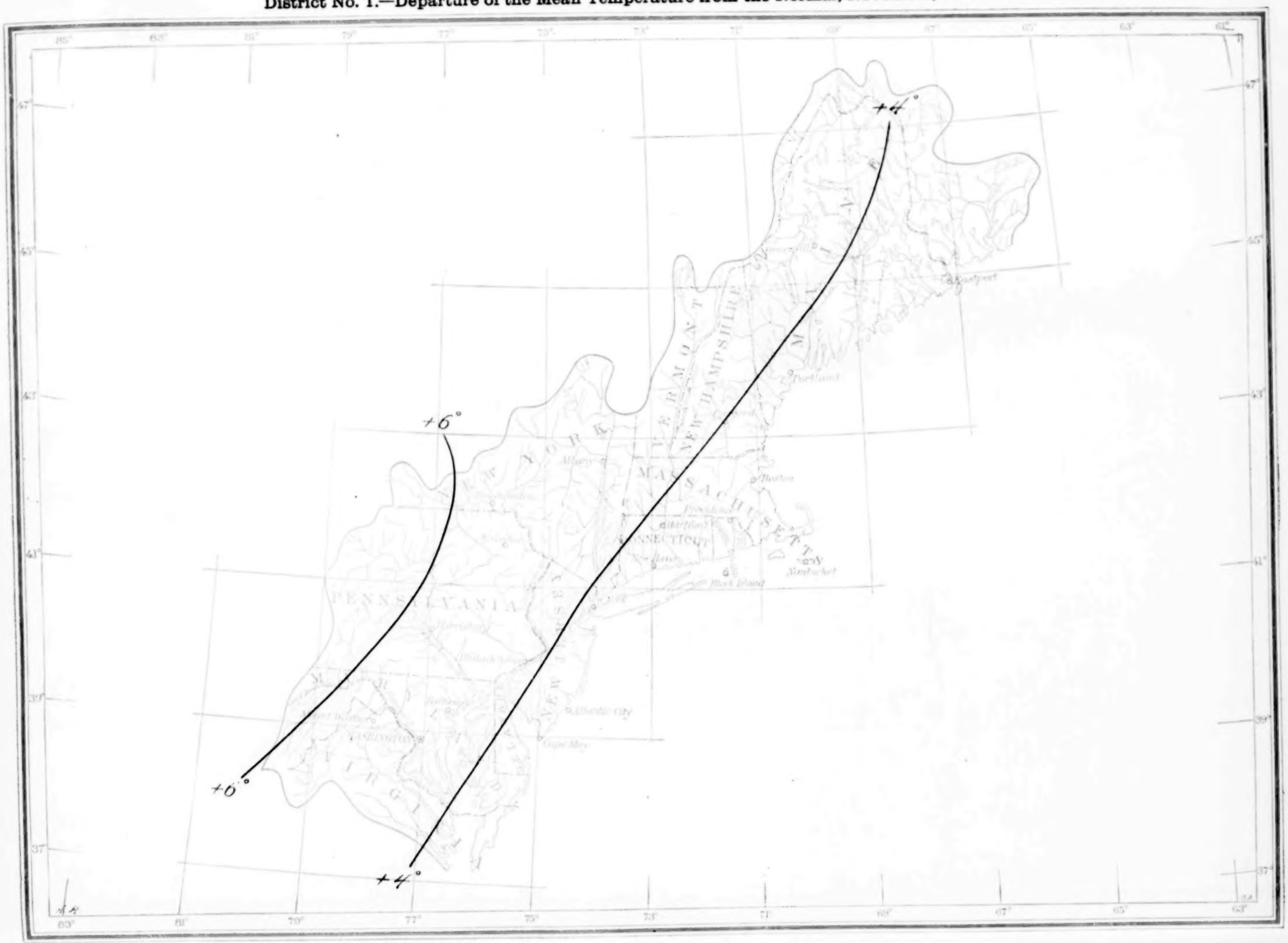
Climatological Districts of the United States.



District No. 1.—Total Precipitation, November, 1909.



District No. 1.—Departure of the Mean Temperature from the Normal, November, 1909.



District No. 2.—Total Precipitation, November, 1909.

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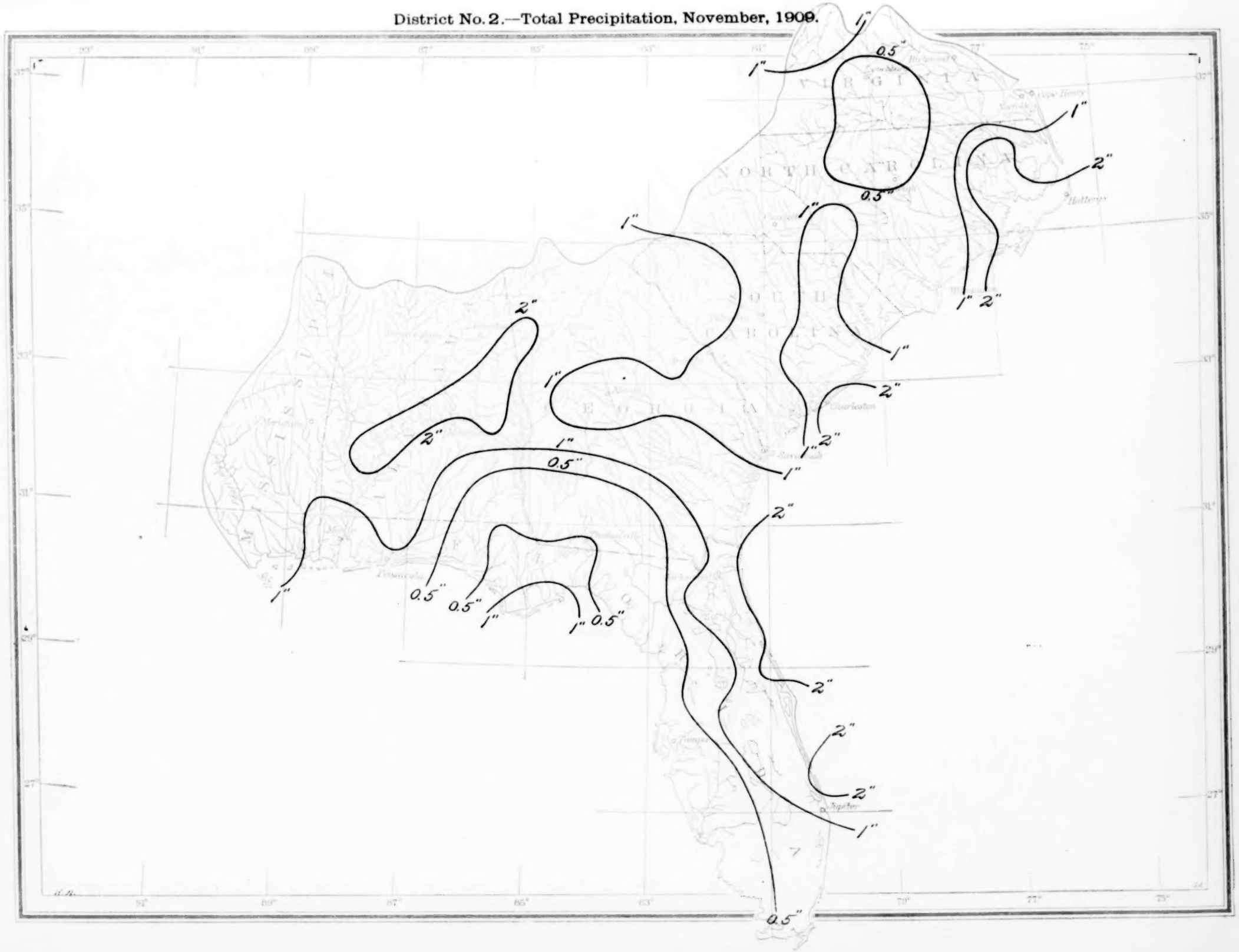
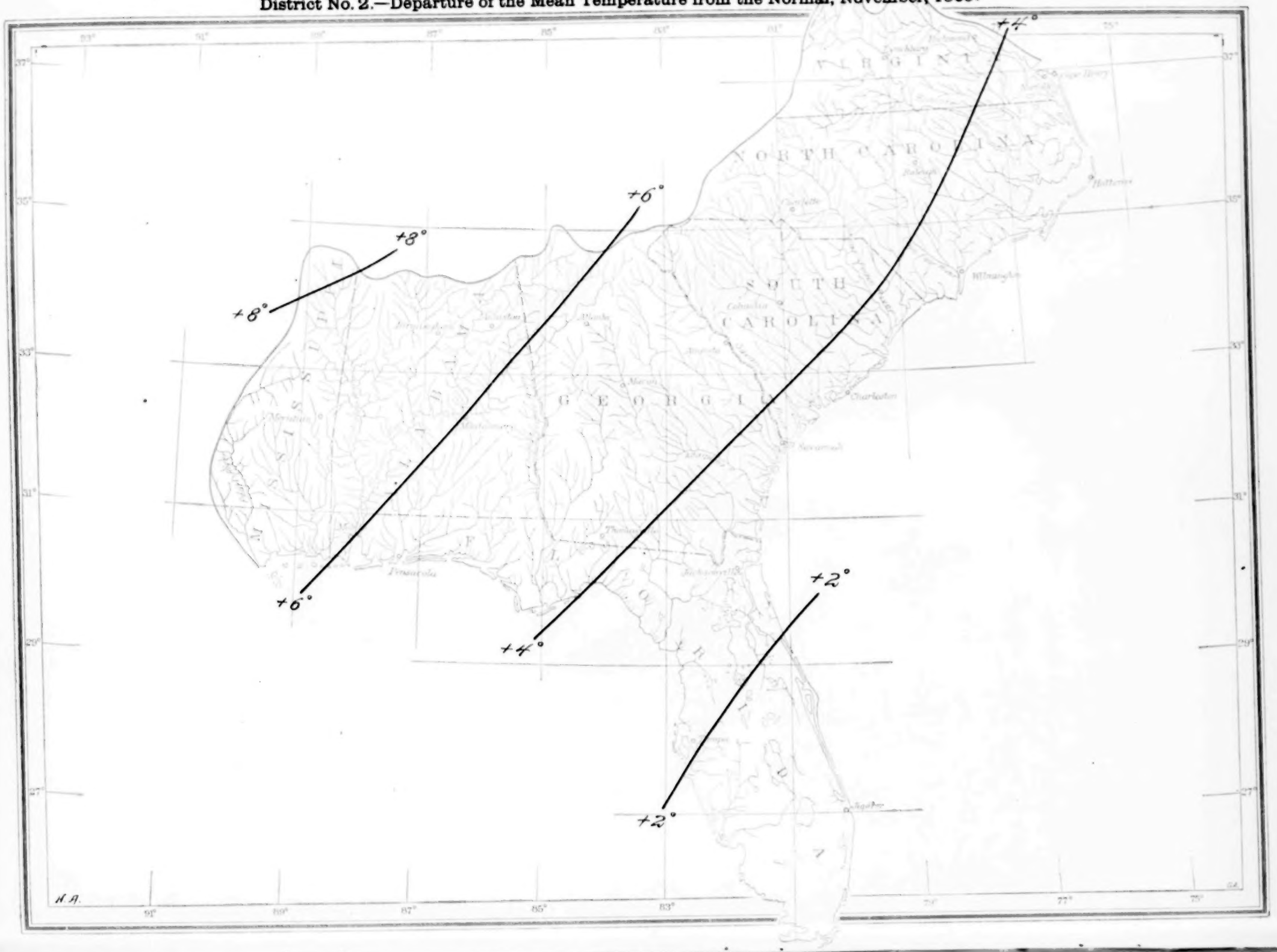


District No. 2.—Departure of the Mean Temperature from the Normal, November, 1909.



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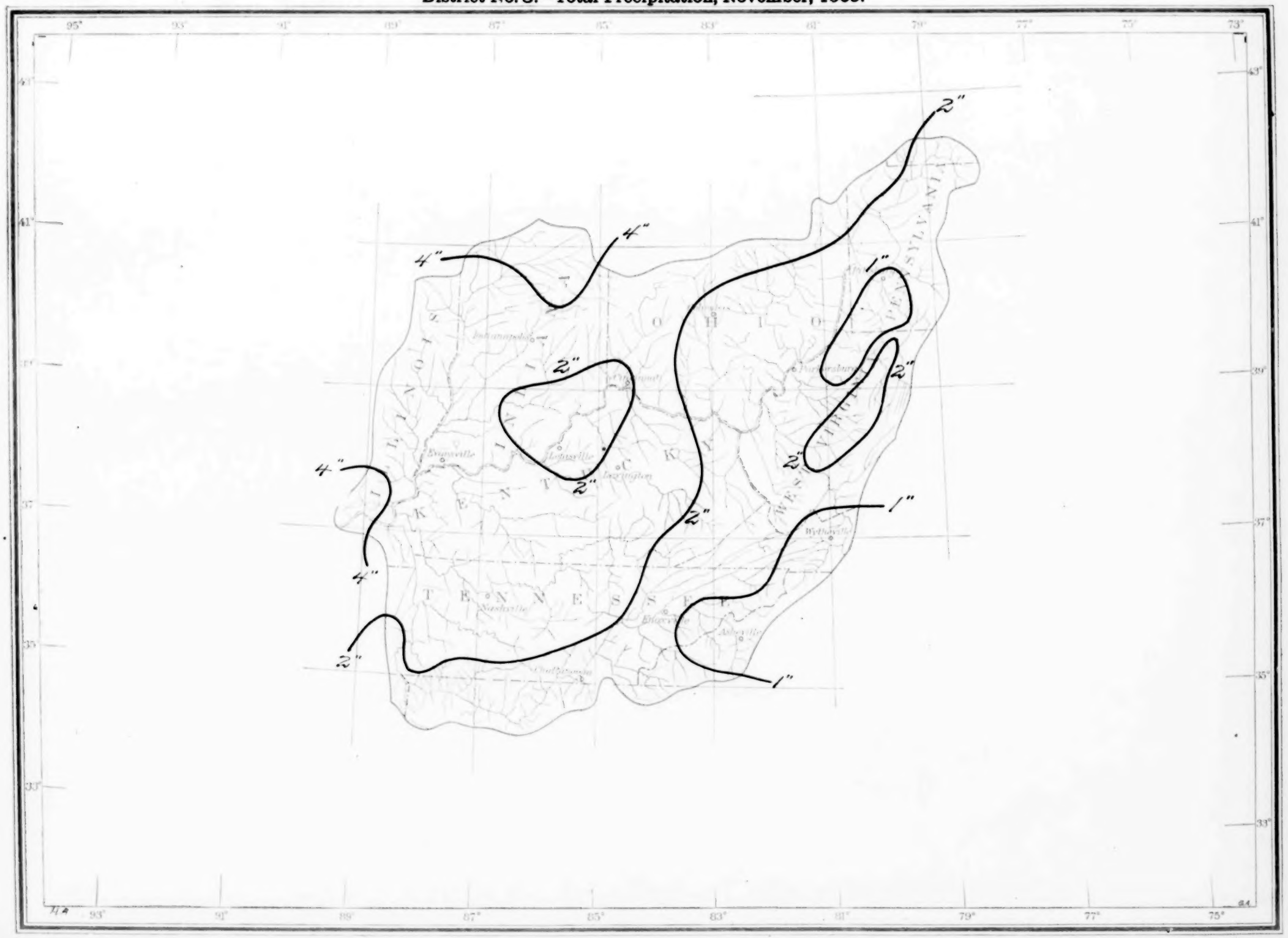
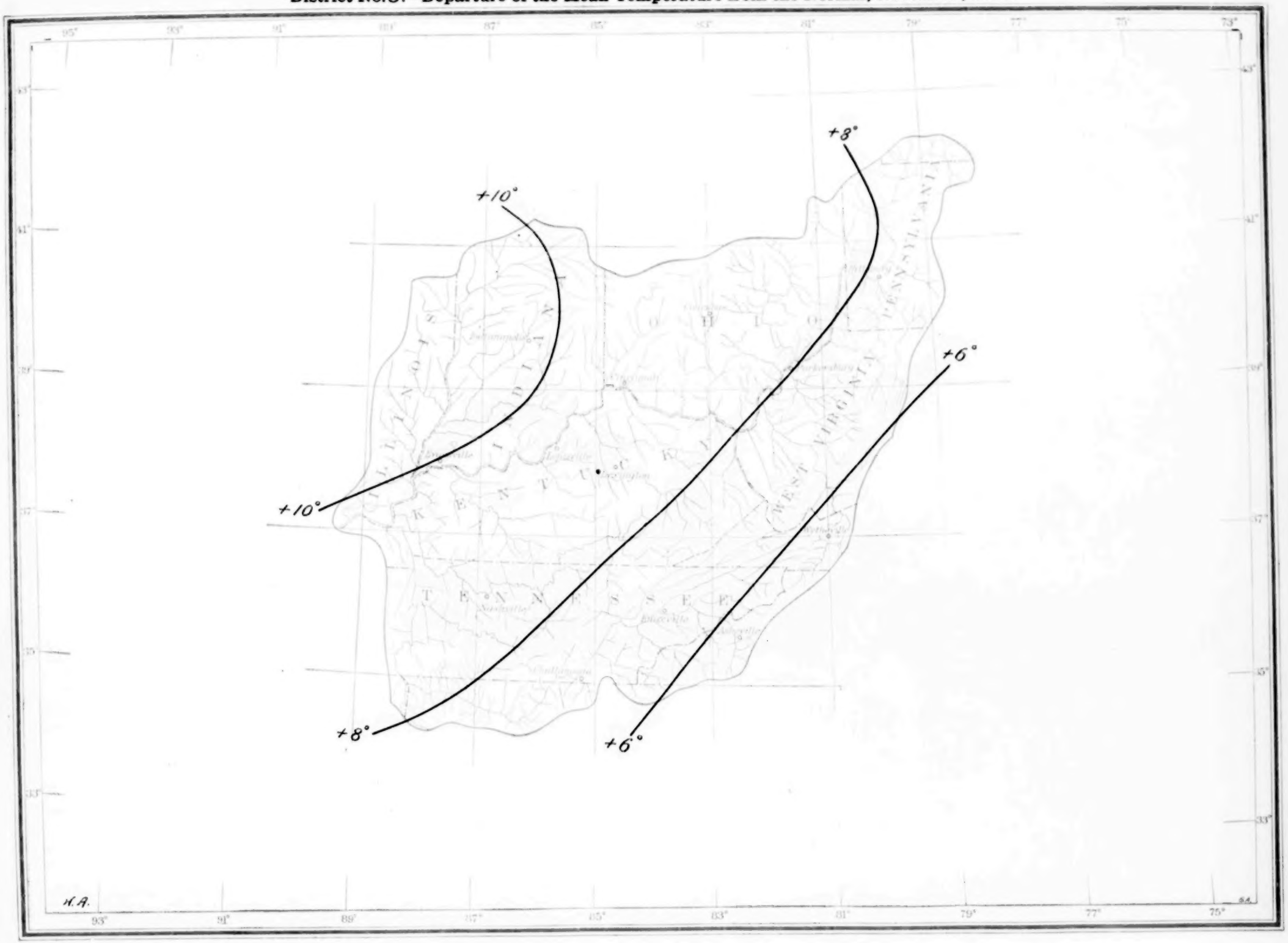


District No. 3.—Departure of the Mean Temperature from the Normal, November, 1909.



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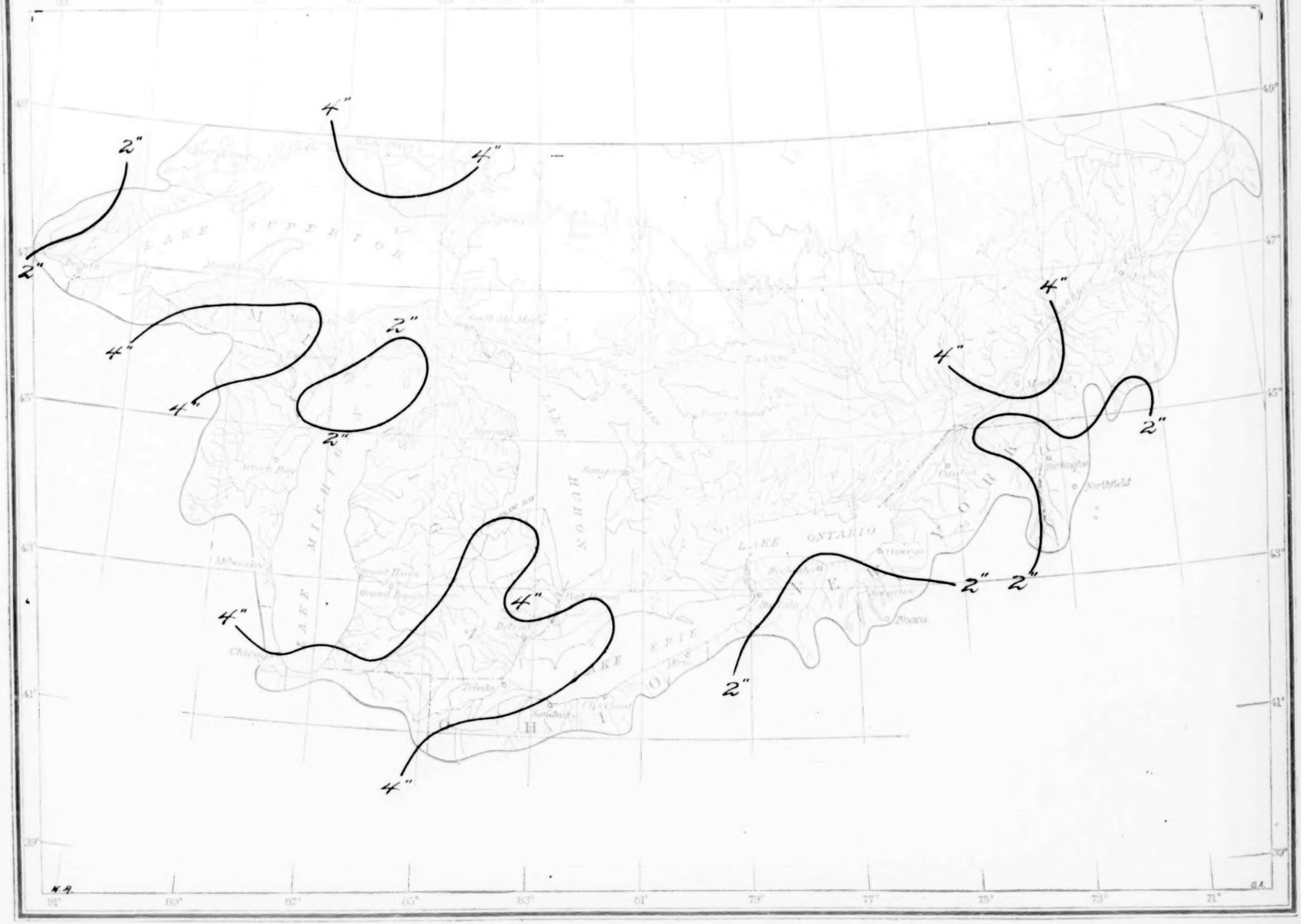
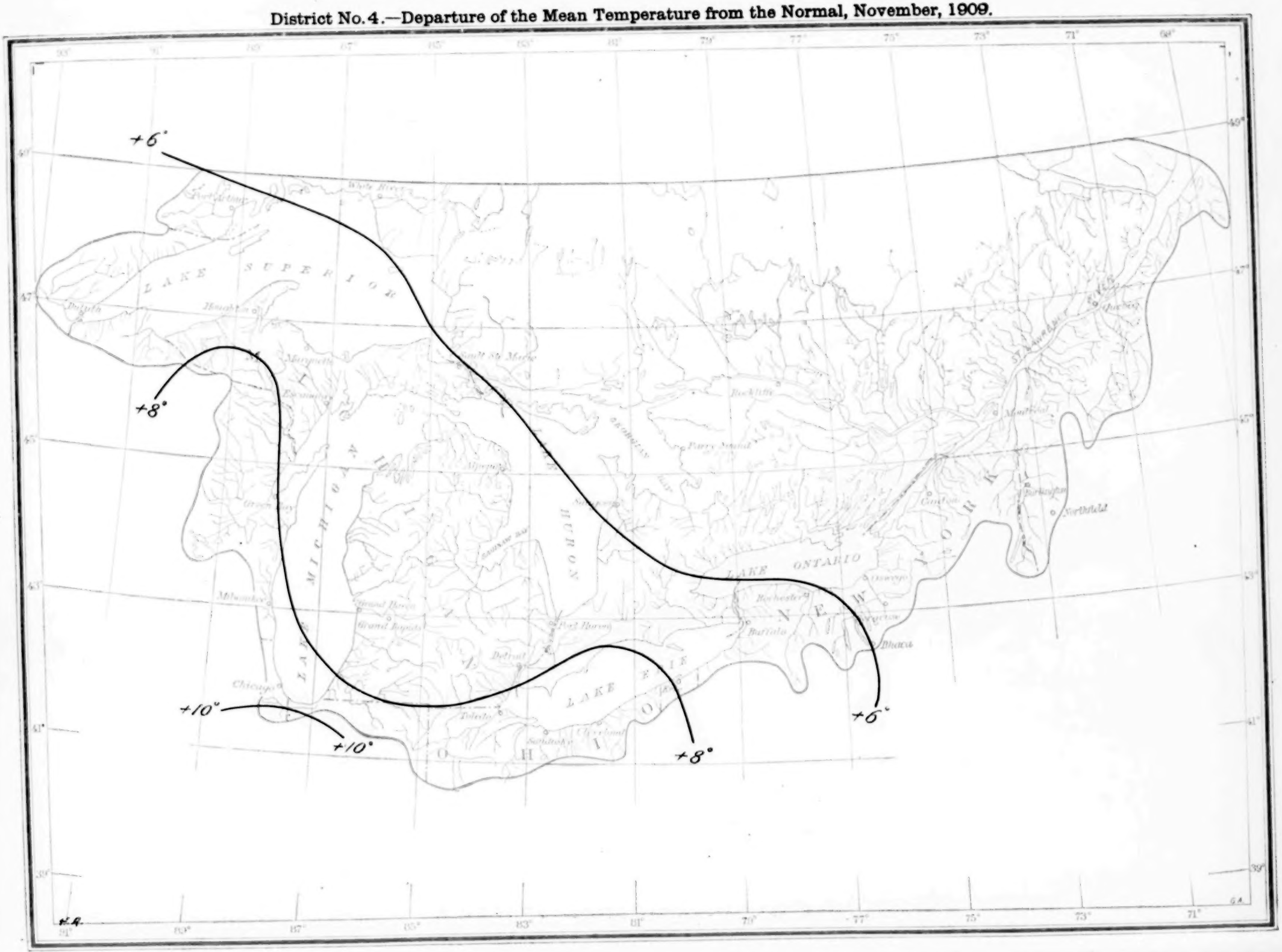
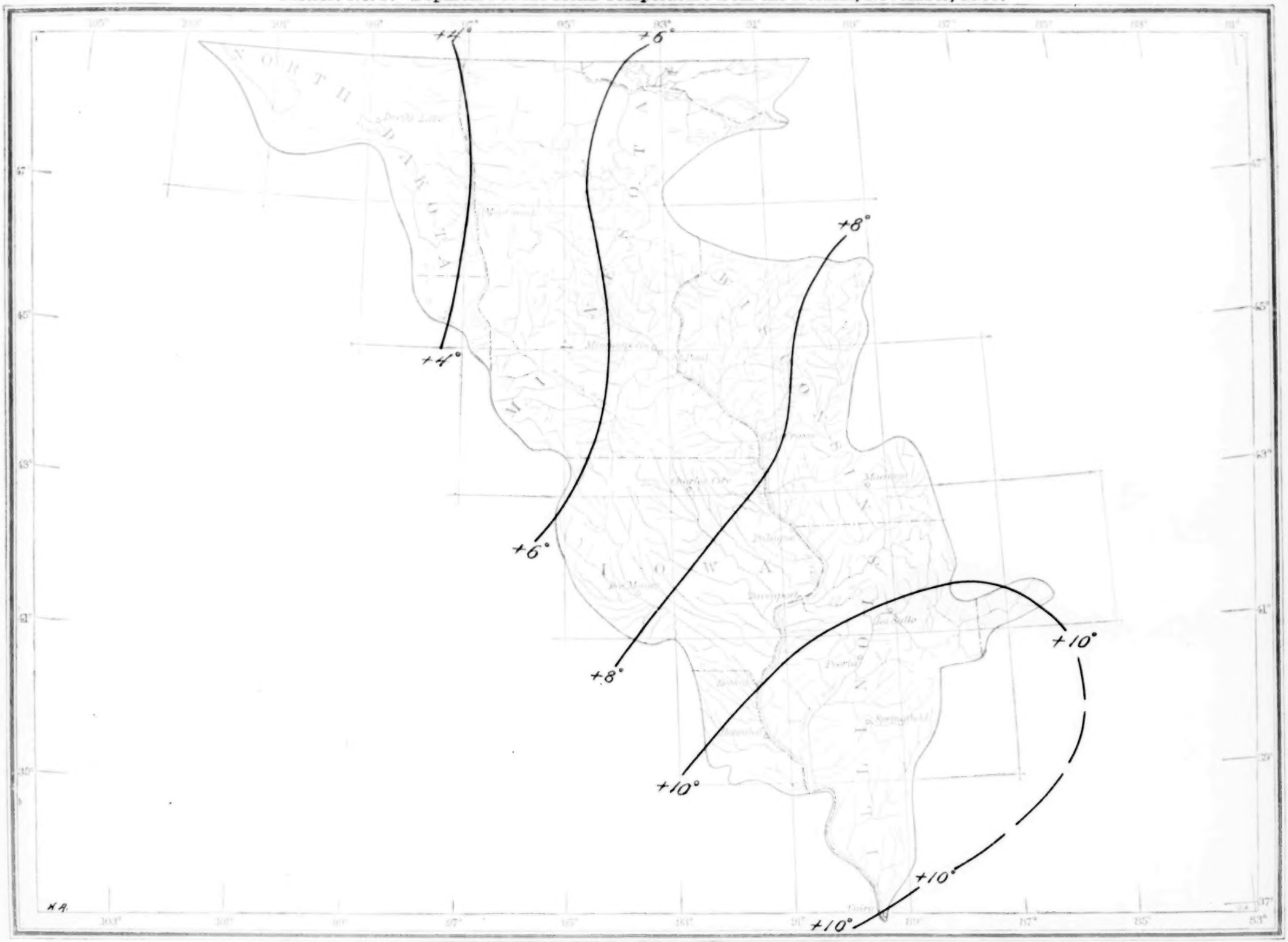


District No. 4.—Departure of the Mean Temperature from the Normal, November, 1909.



District No. 5.—Total Precipitation, November, 1909.

District No. 5.—Departure of the Mean Temperature from the Normal, November, 1909.



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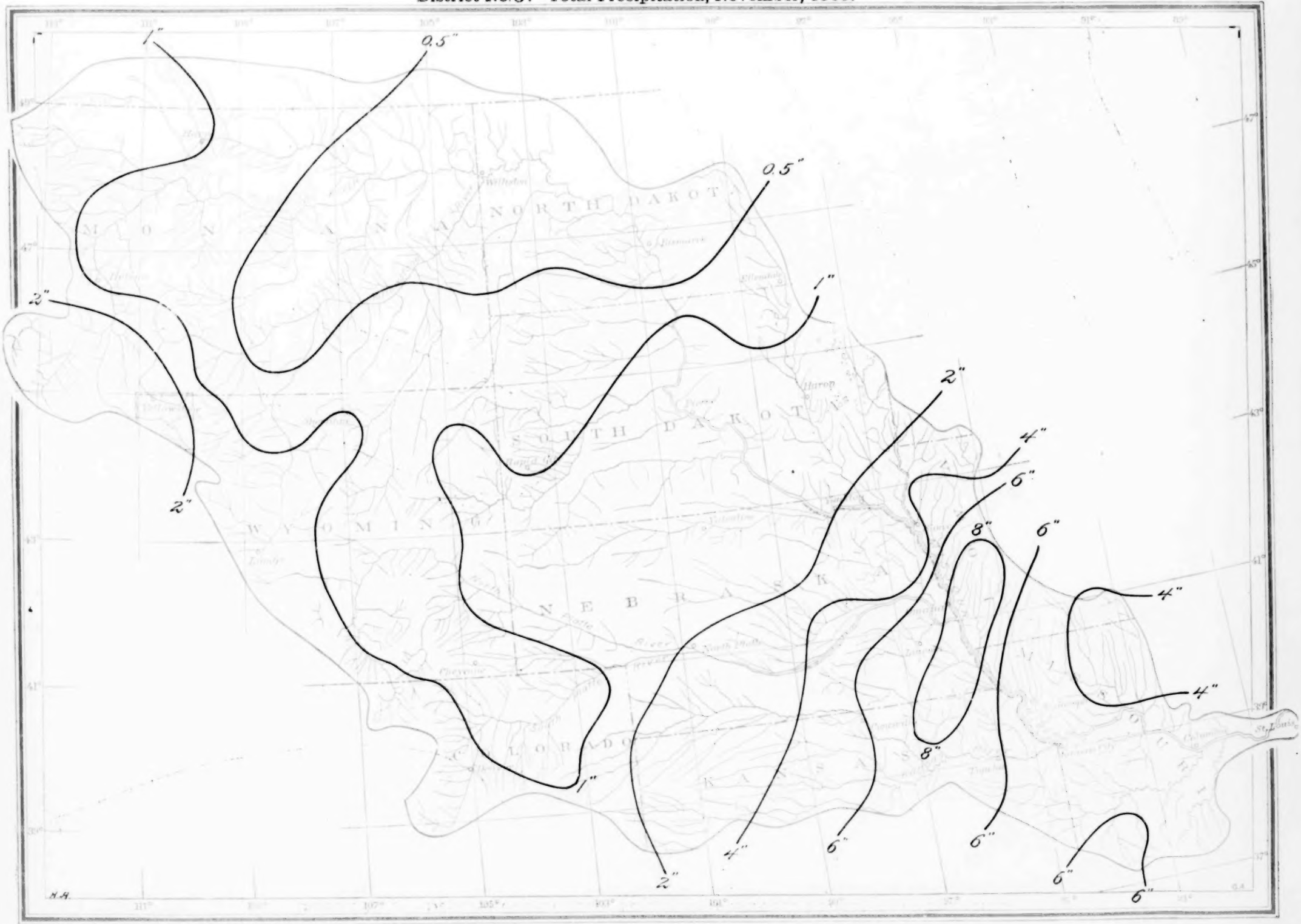
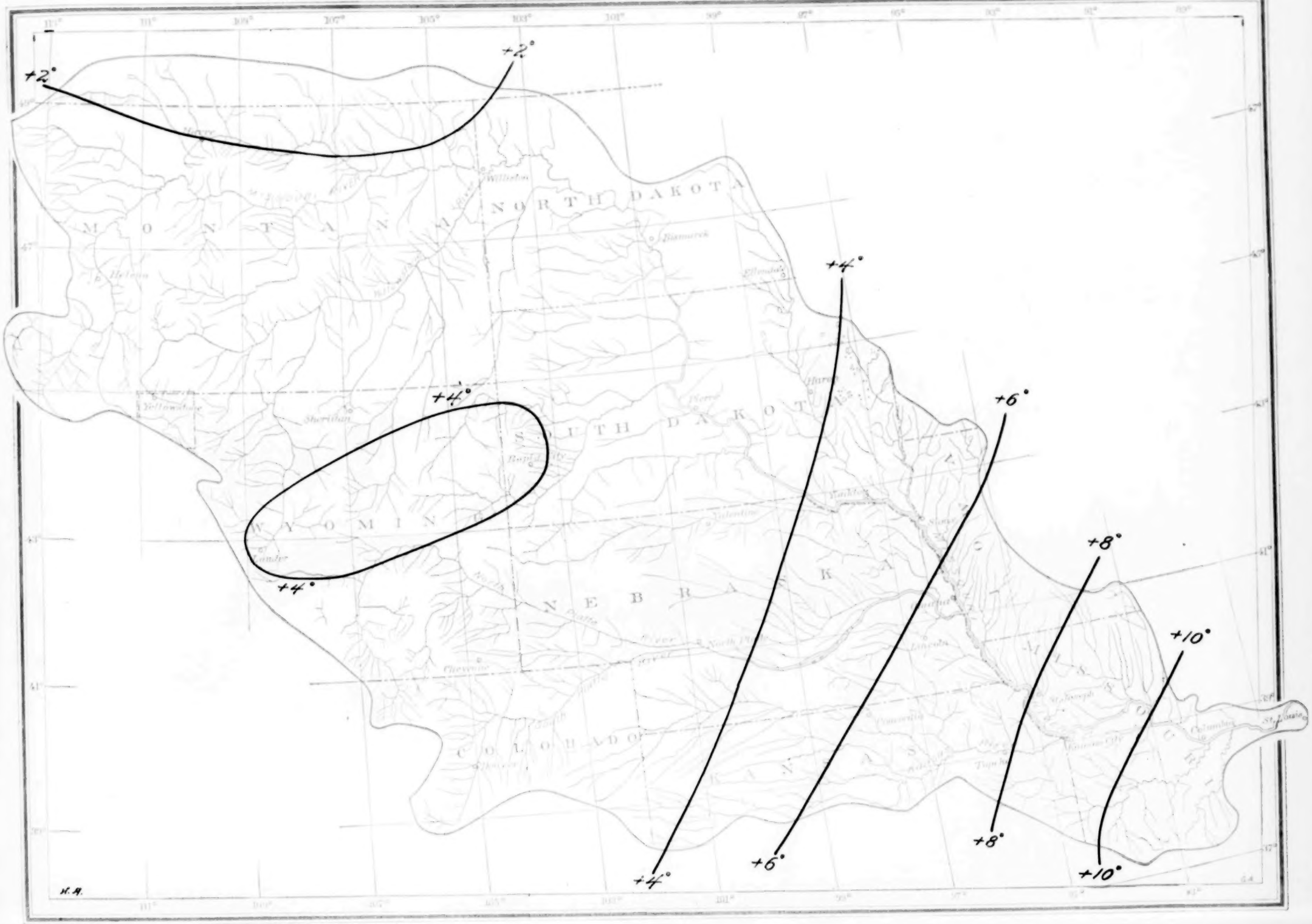


District No. 6.—Departure of the Mean Temperature from the Normal, November, 1909.



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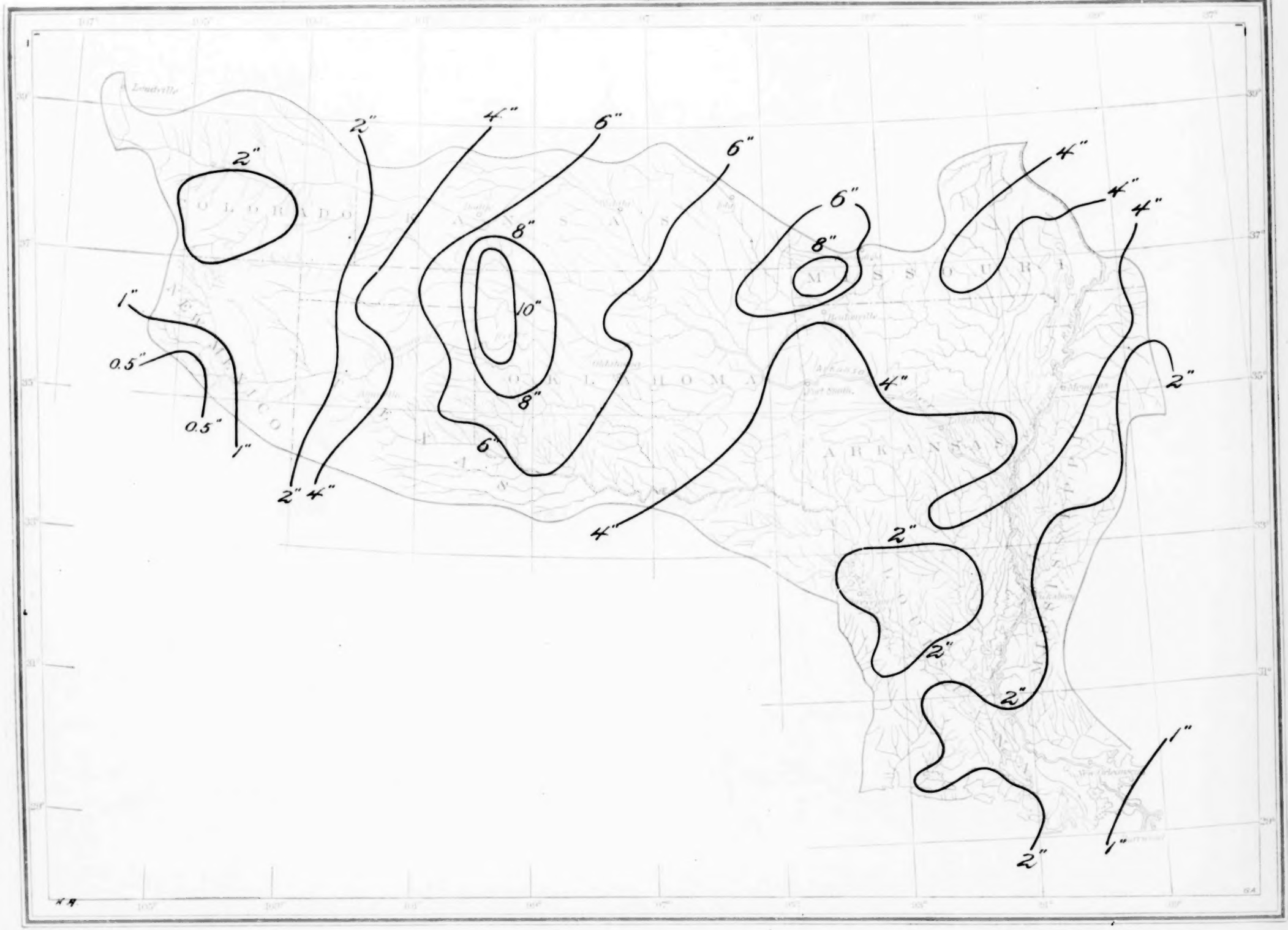
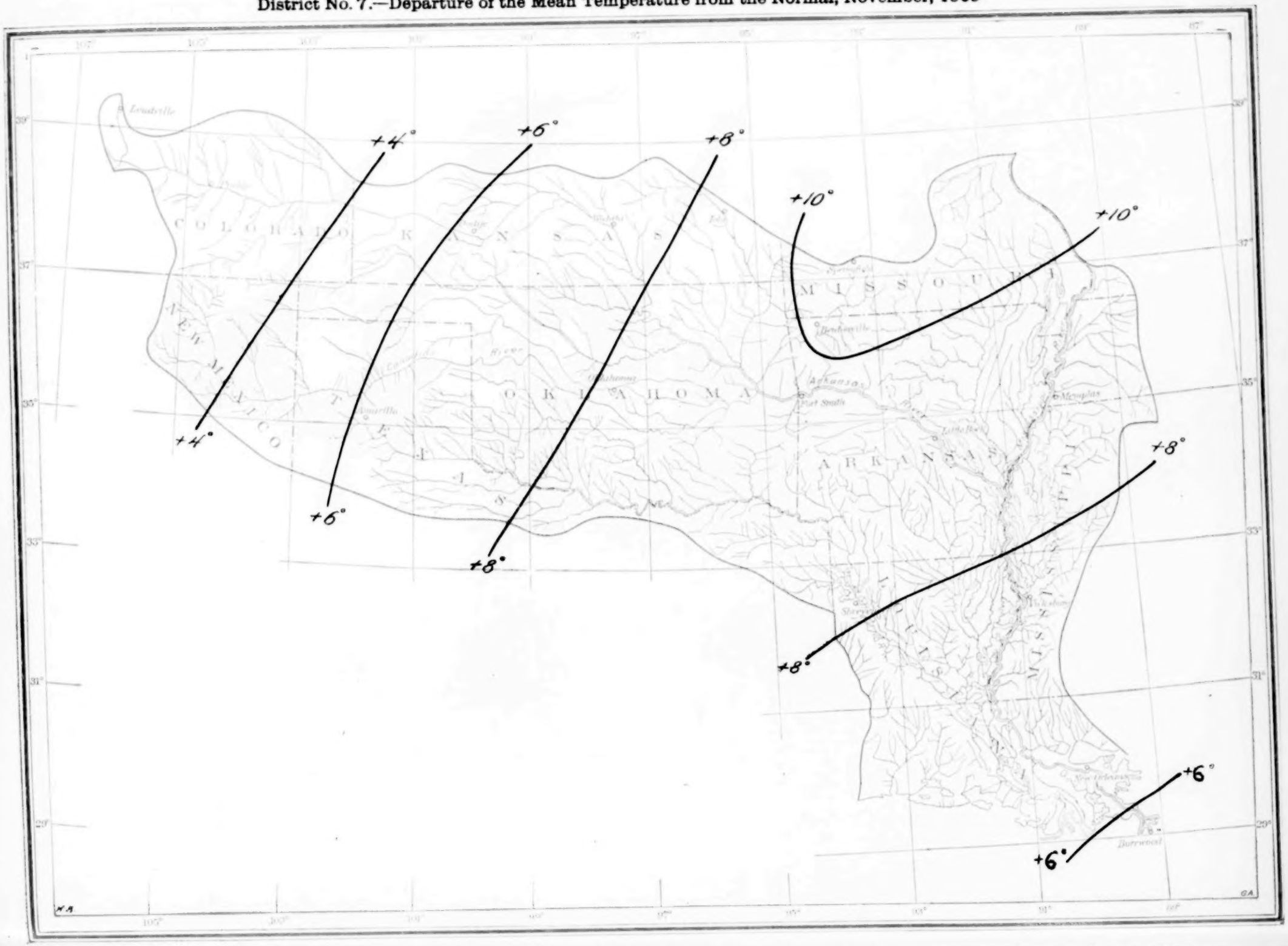
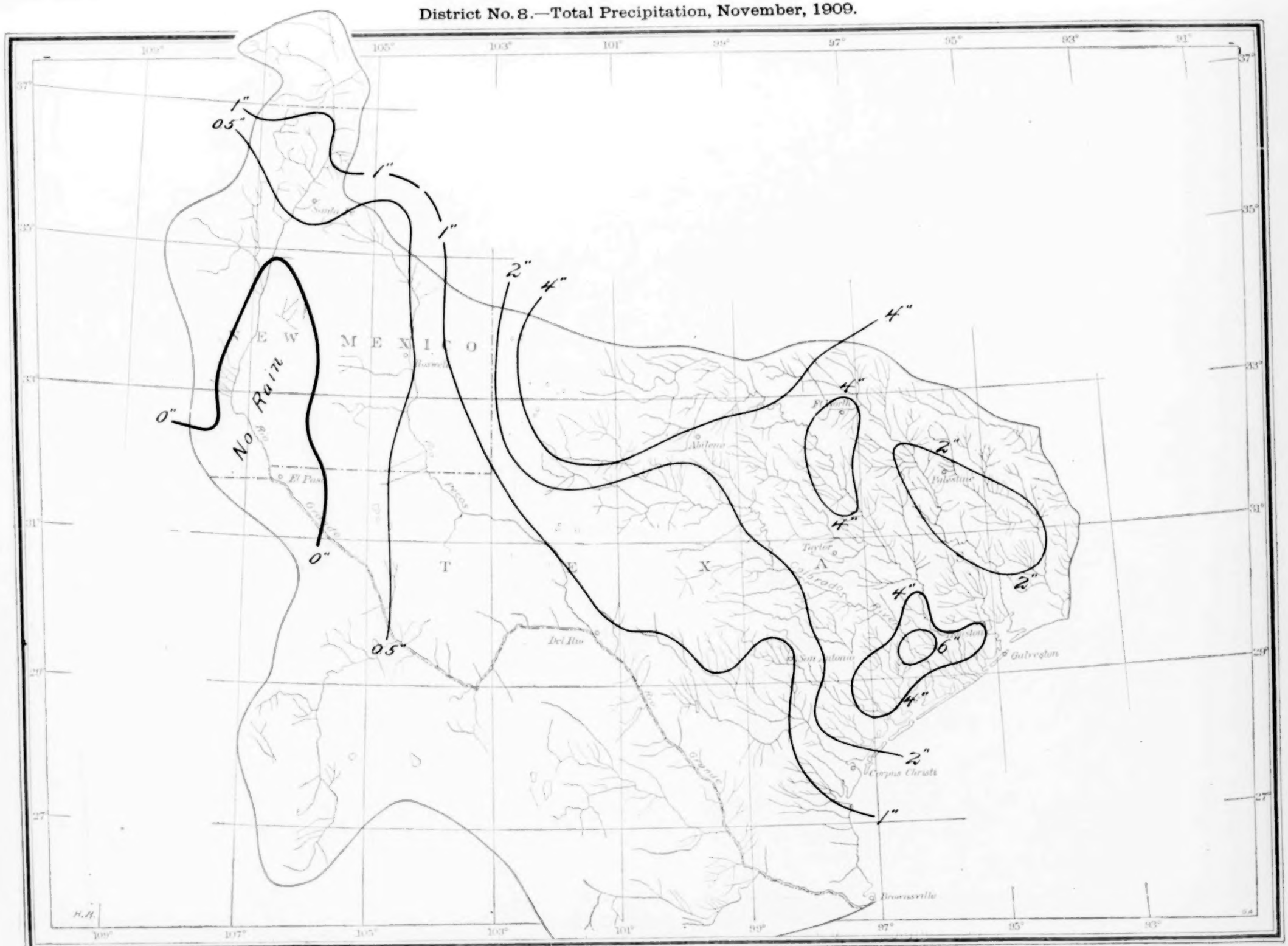


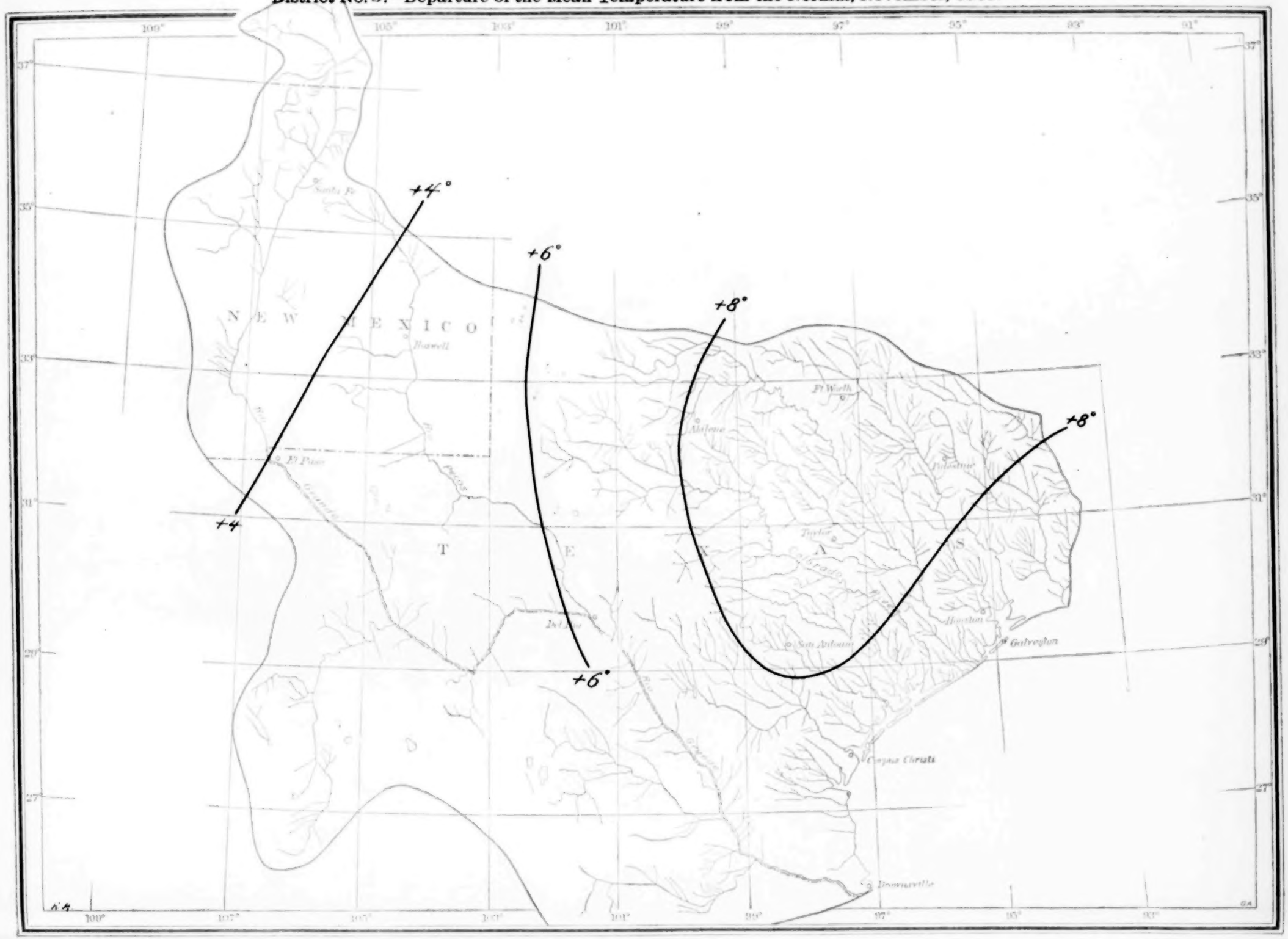
District No. 7.—Departure of the Mean Temperature from the Normal, November, 1909.



District No. 8.—Total Precipitation, November, 1909.



District No. 8.—Departure of the Mean Temperature from the Normal, November, 1909.



District No. 9.—Total Precipitation, November, 1909

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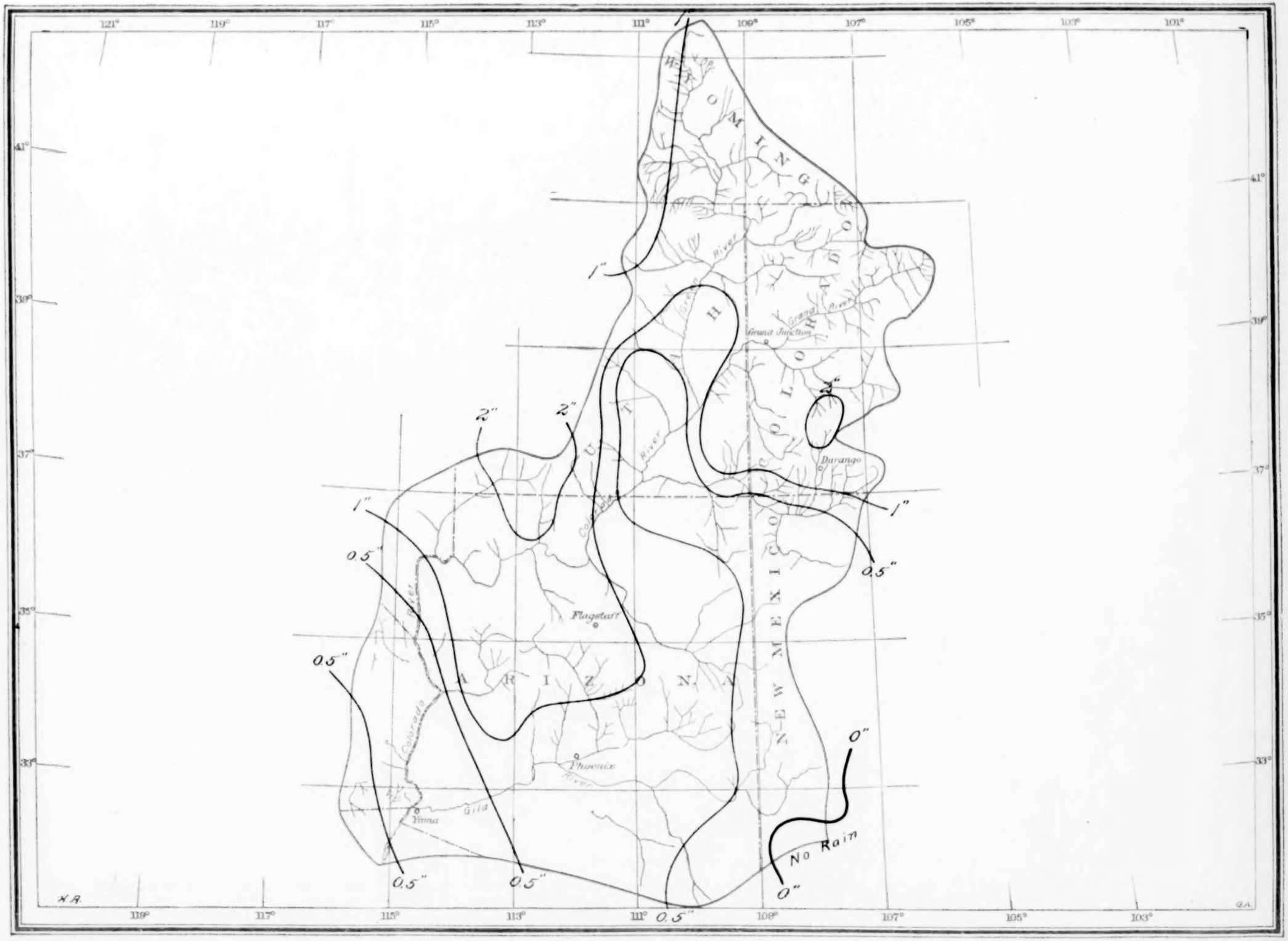

District No. 9.—Departure of the Mean Temperature from the Normal, November, 1909.

District No. 10.—Total Precipitation, November, 1909.

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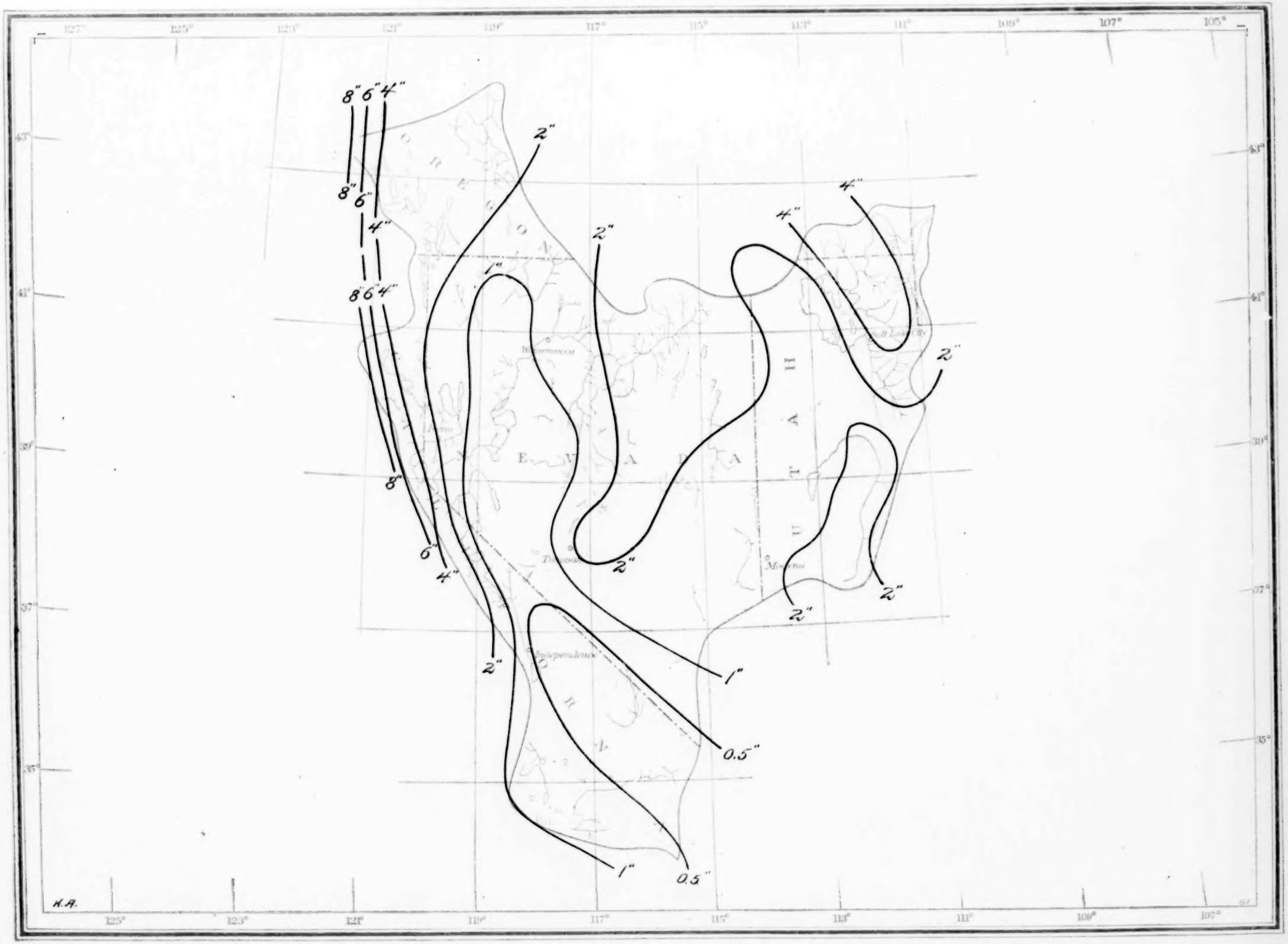
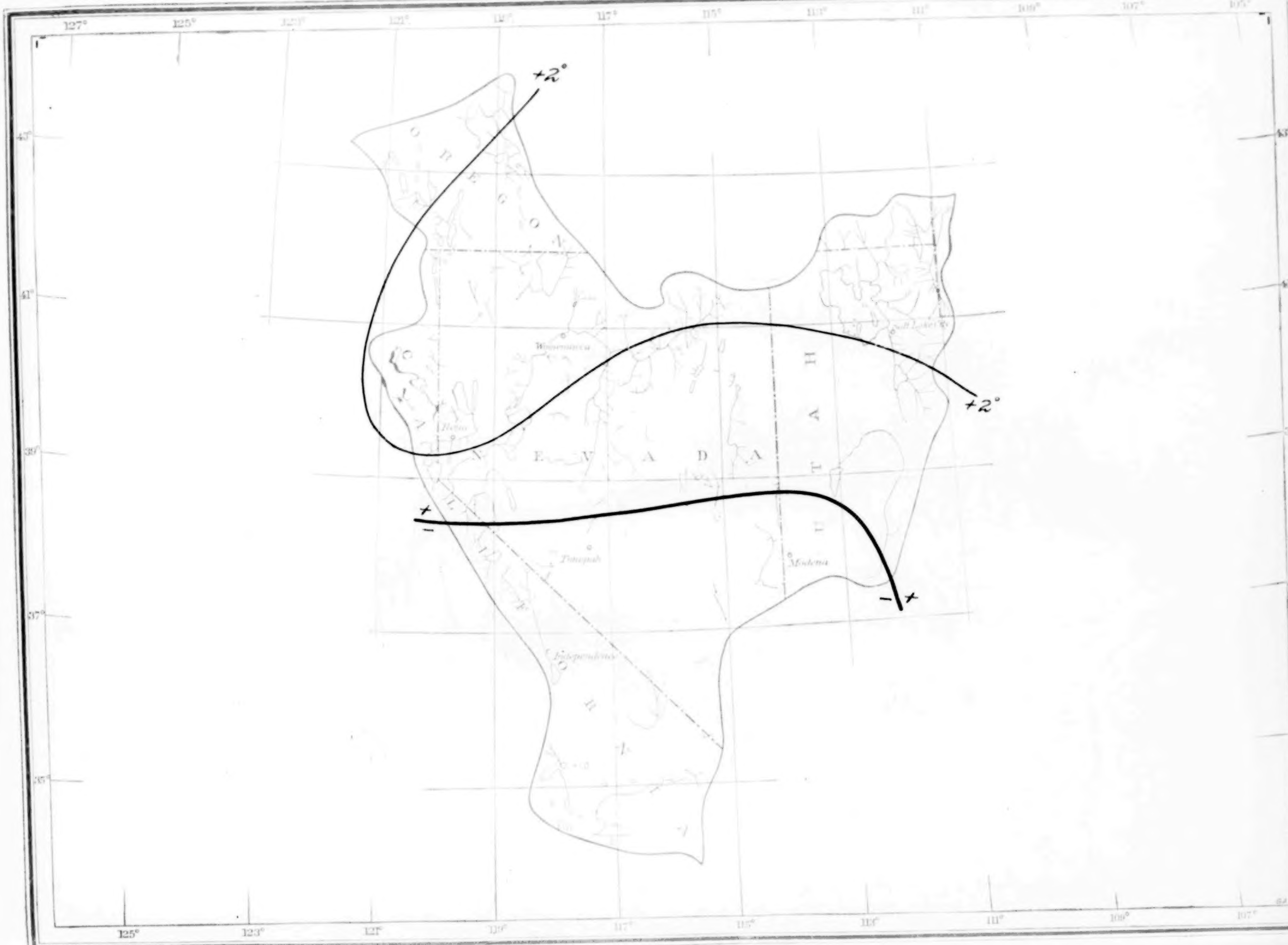
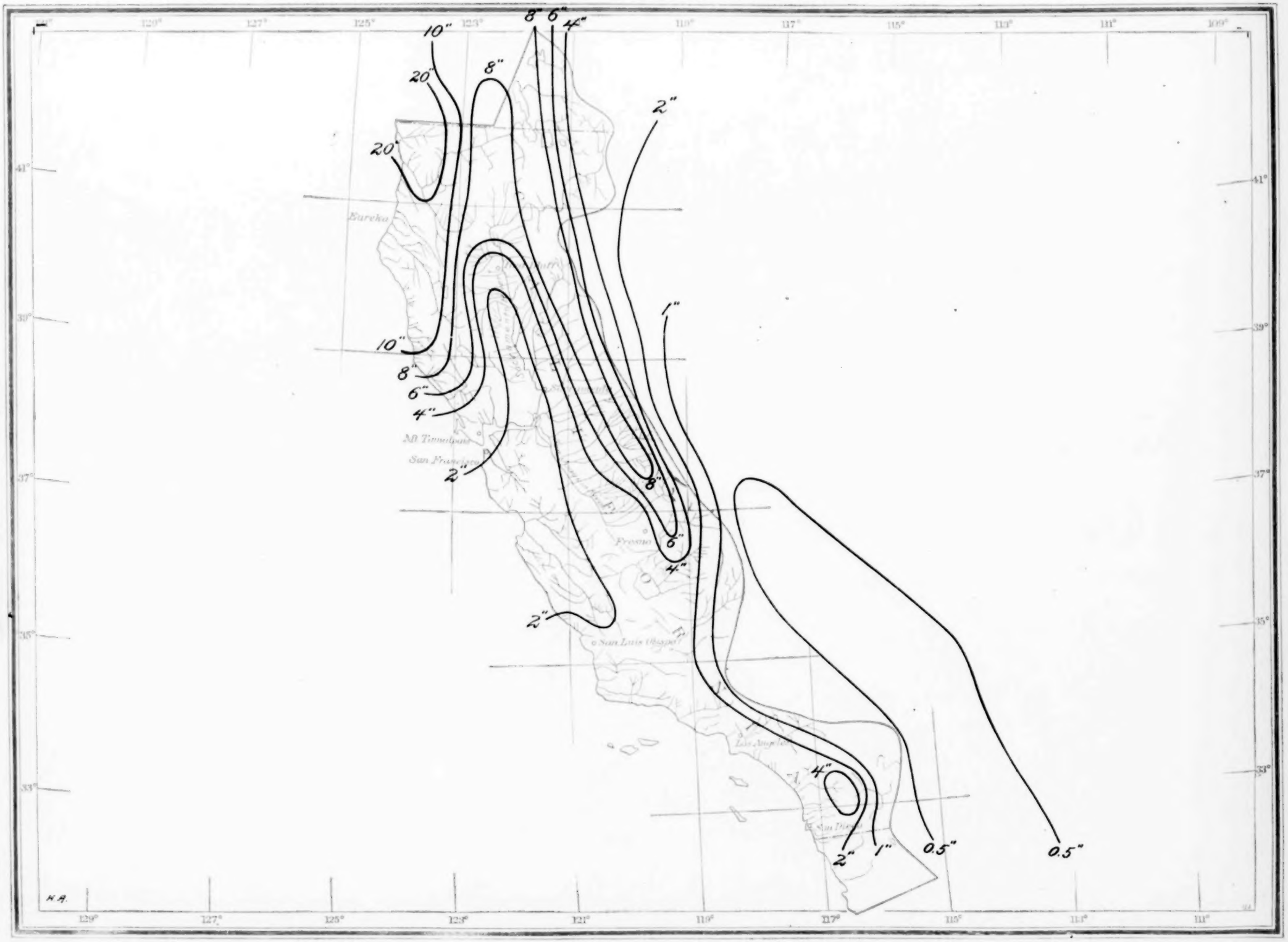


District No. 10.--Departure of the Mean Temperature from the Normal, November, 1909.

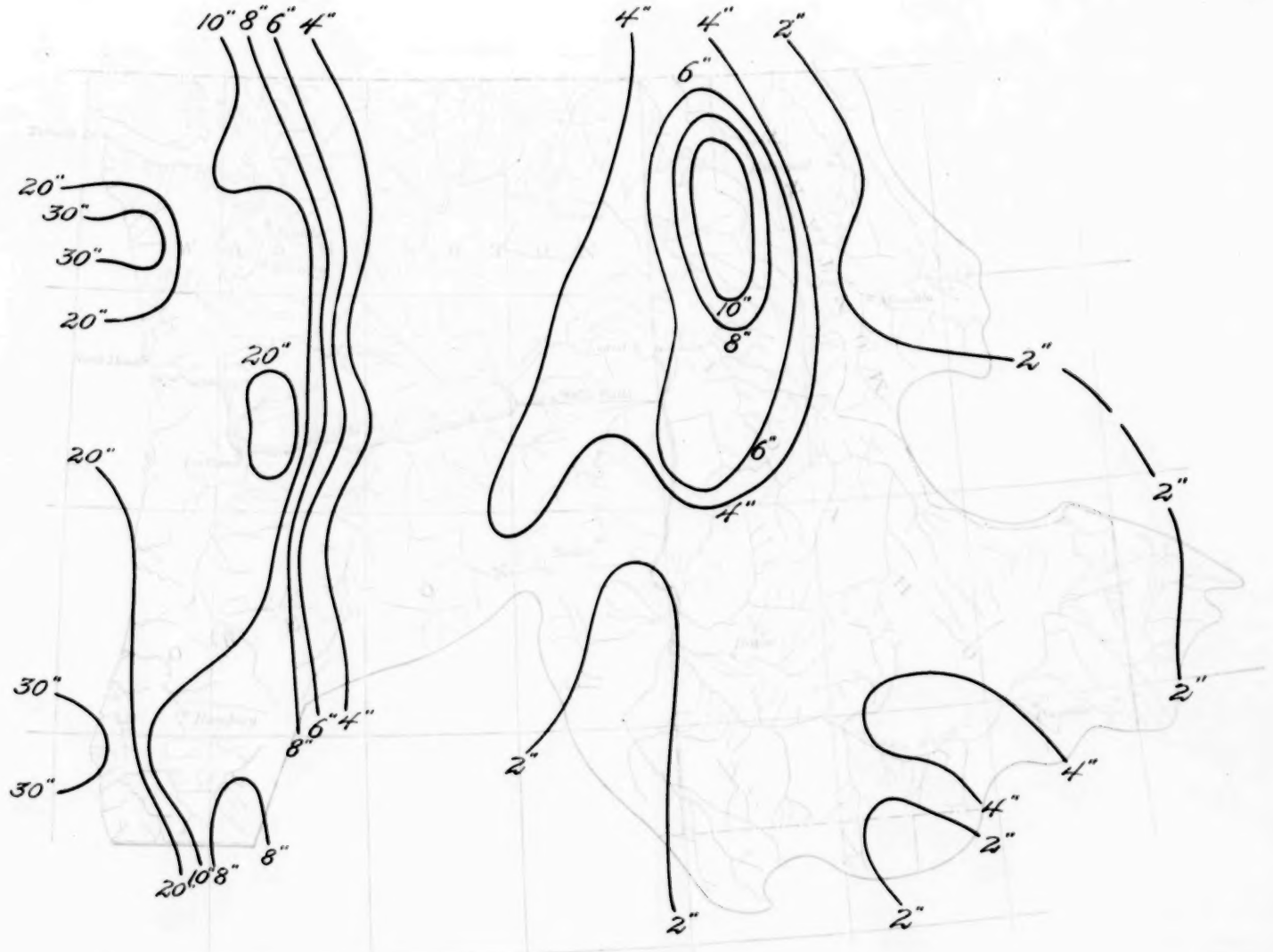


District No. 11.—Total Precipitation, November, 1909.



District No.11.—Departure of the Mean Temperature from the Normal, November, 1909.

District No. 12 —Total Precipitation, November, 1909.



District No. 12.—Departure of the Mean Temperature from the Normal, November, 1909.

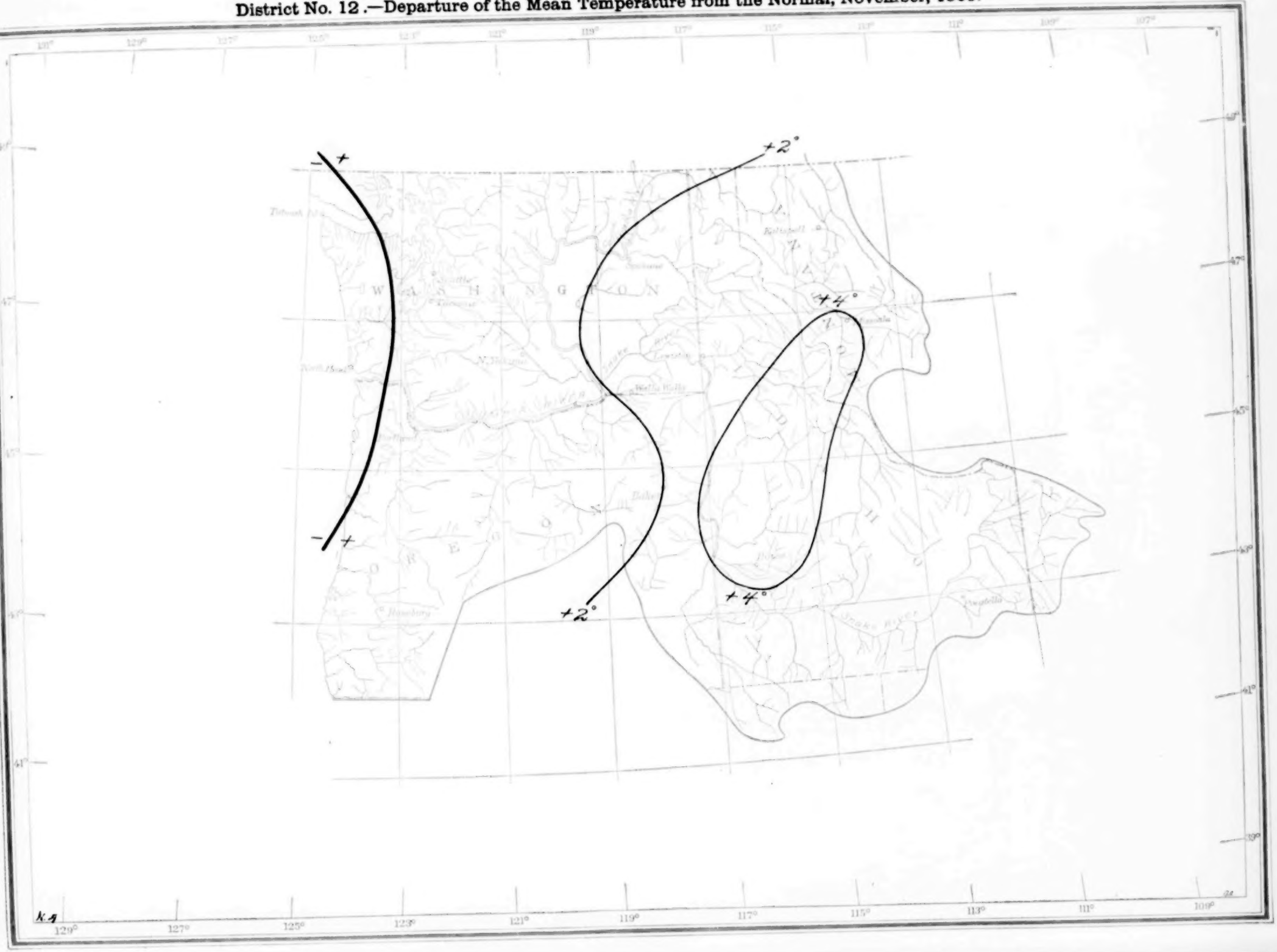


Chart I. Hydrographs of Several Principal Rivers, November, 1909.

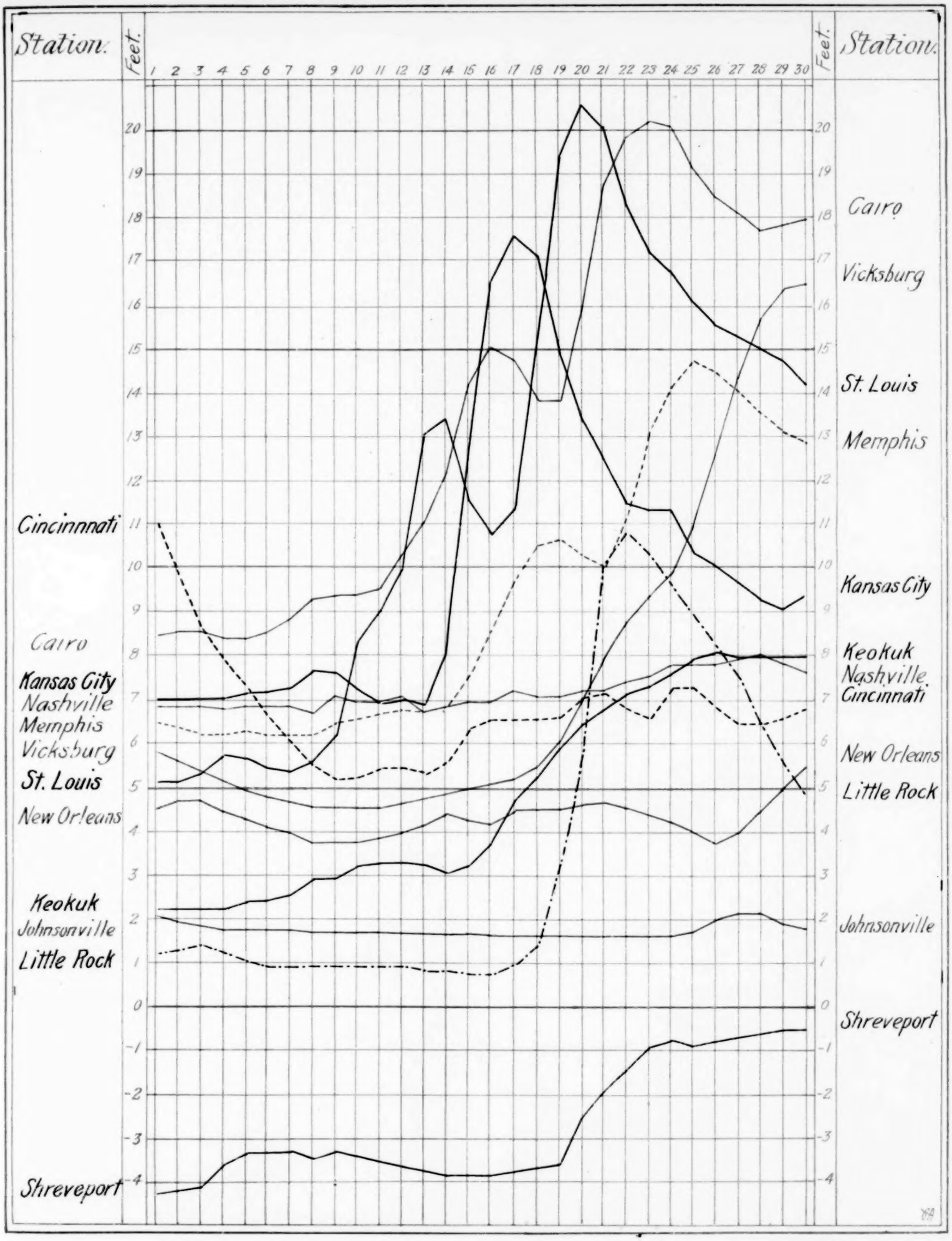


Chart II. Tracks of Centers of High Areas, November, 1909.

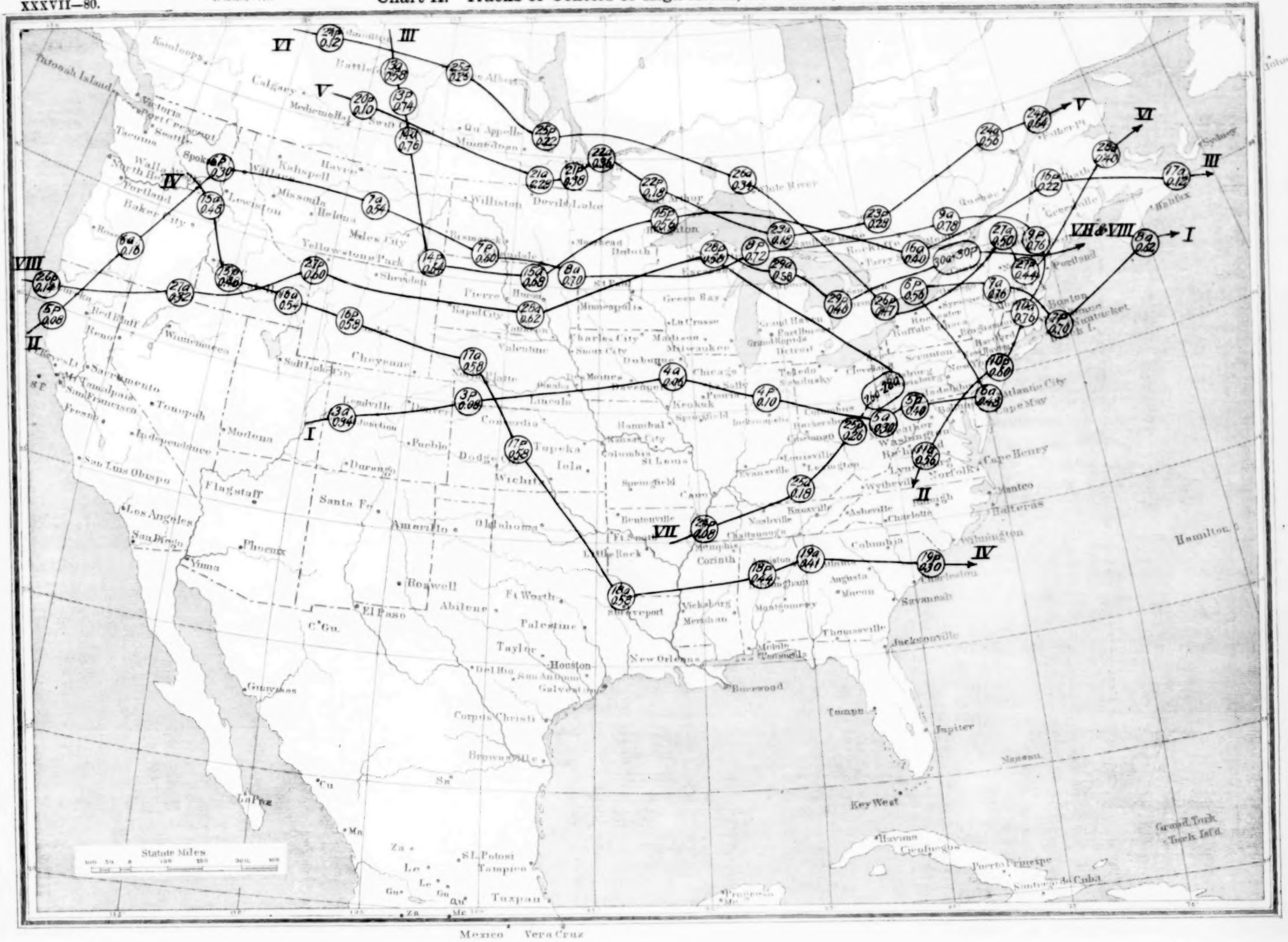


Chart III. Tracks of Centers of Low Areas, November, 1909.

Chart III. Tracks of Centers of Low Areas, November, 1909.

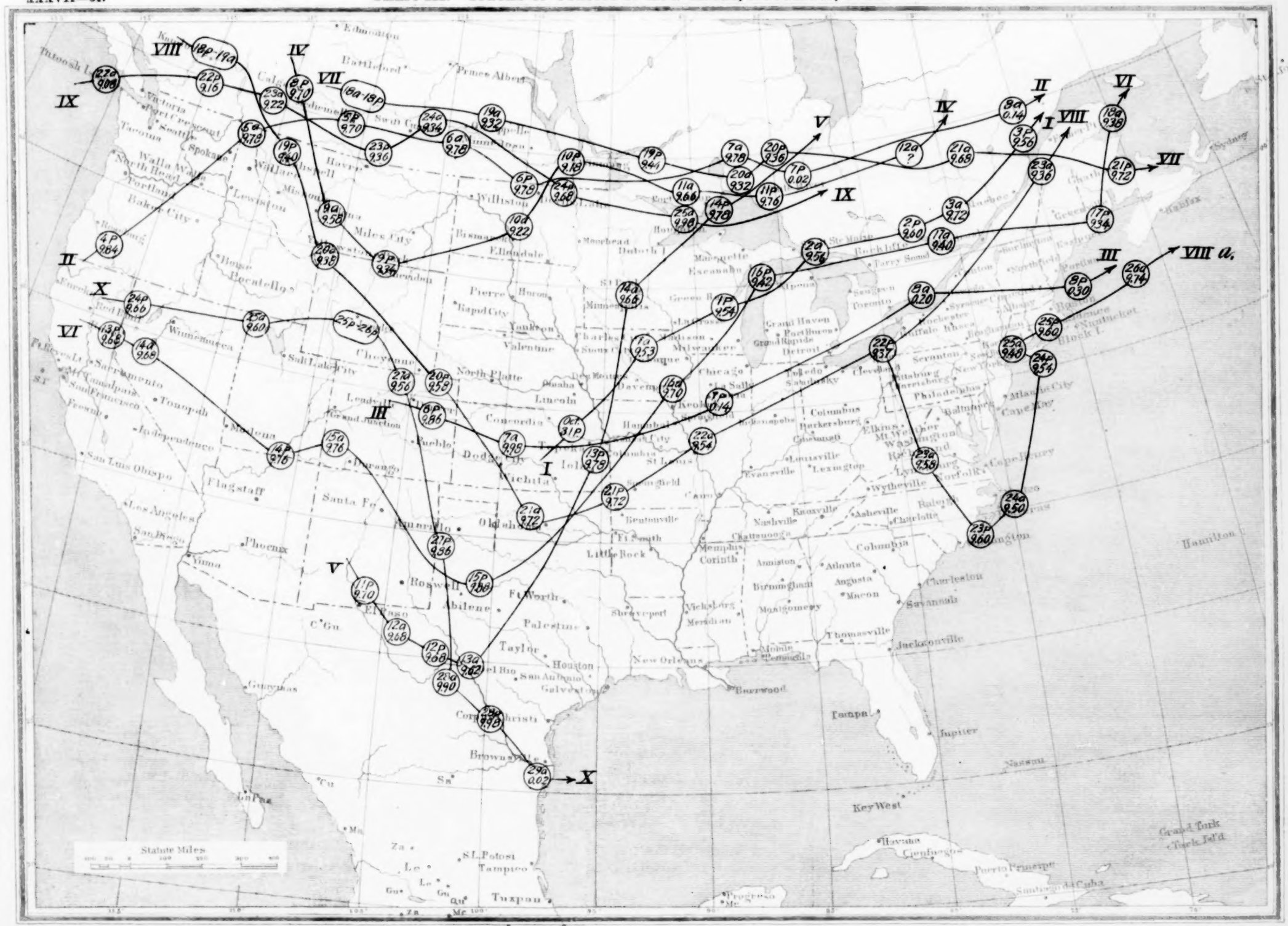


Chart IV. Departure of the Mean Temperature from the Normal, November, 1909.

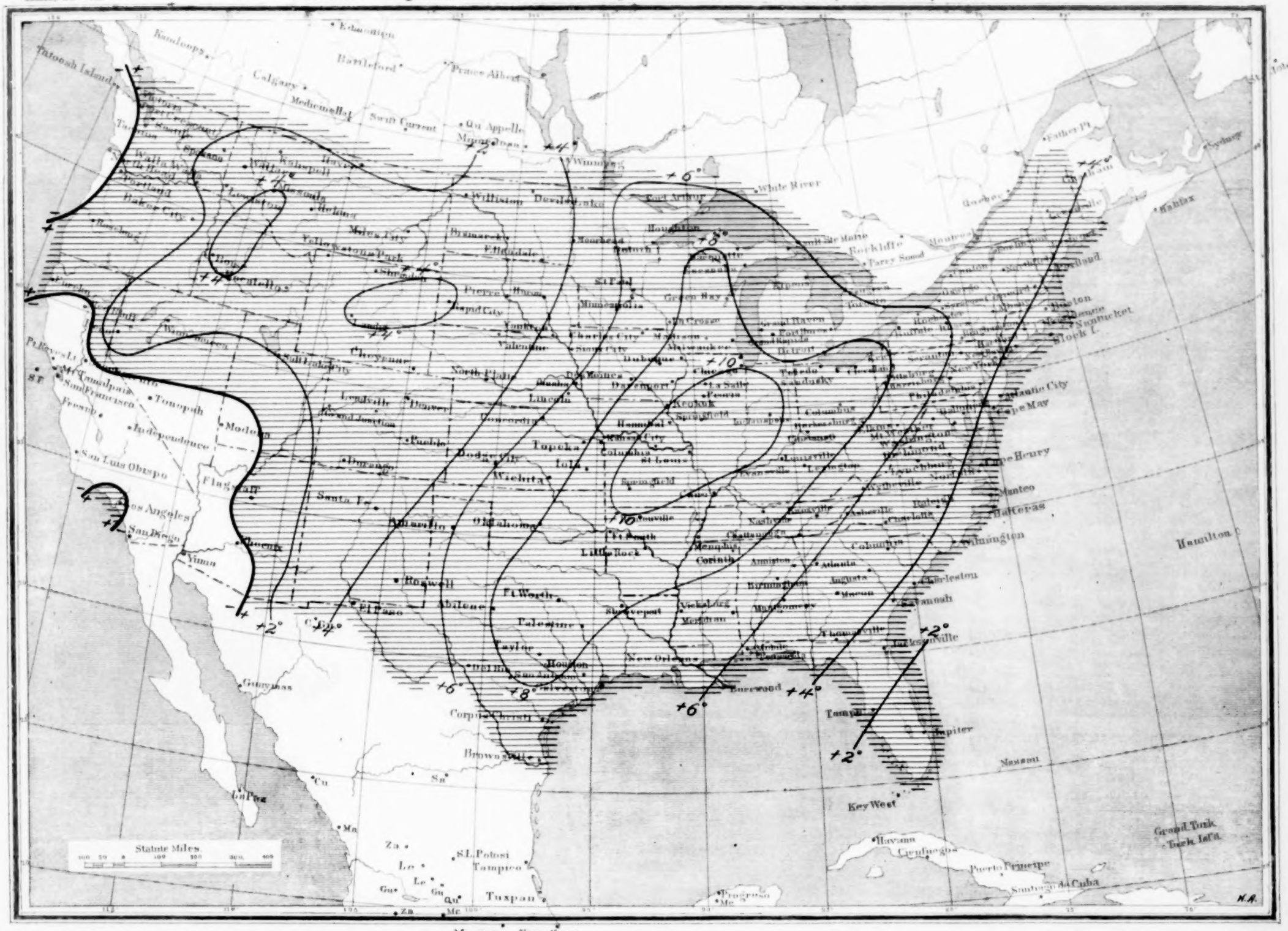


Chart V. Total Precipitation, November, 1909.

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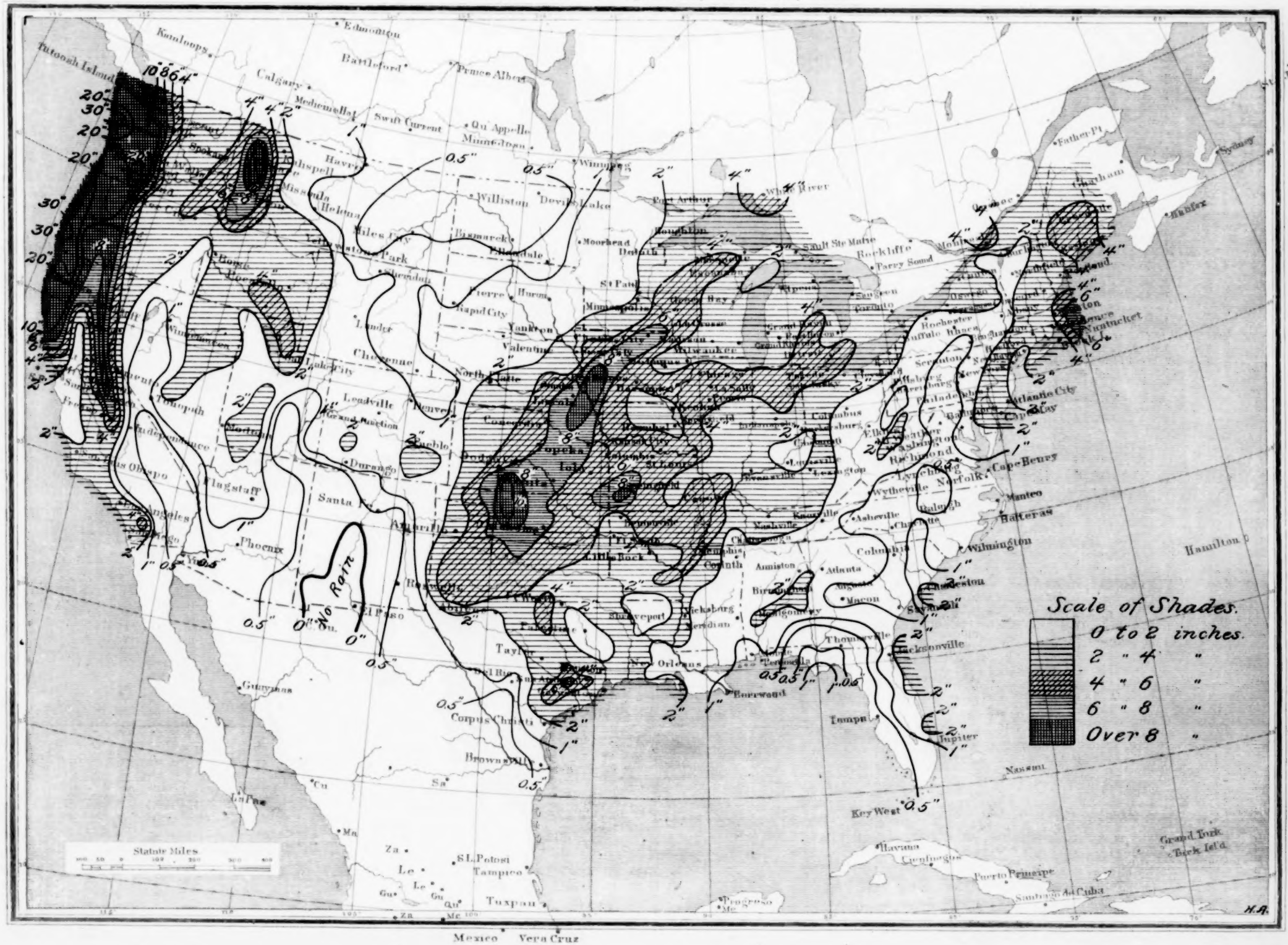

Chart VI. Percentage of Clear Sky between Sunrise and Sunset, November, 1909.

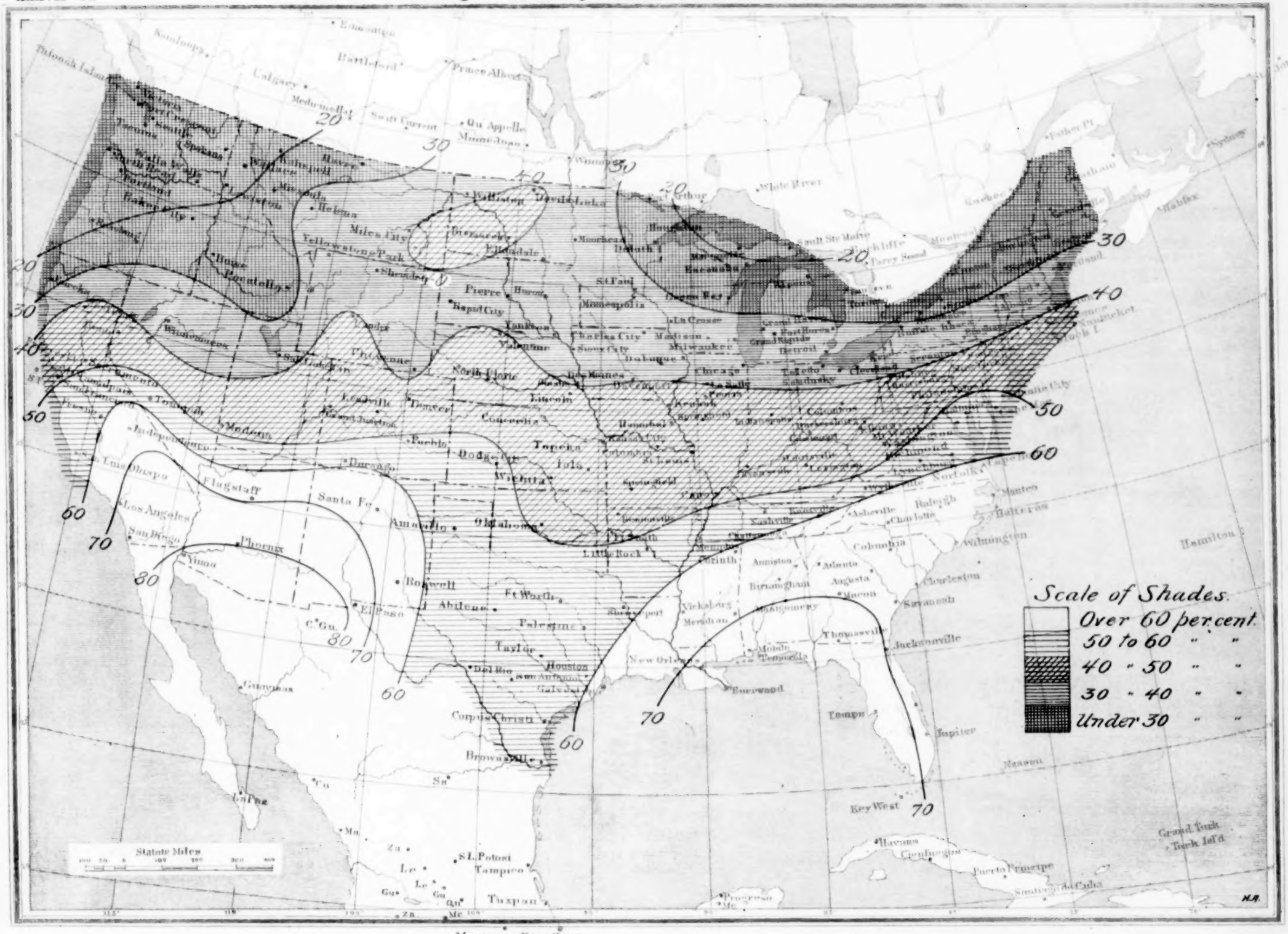

Chart VII. Isobars and Isotherms at Sea Level: Prevailing Winds, November, 1909.
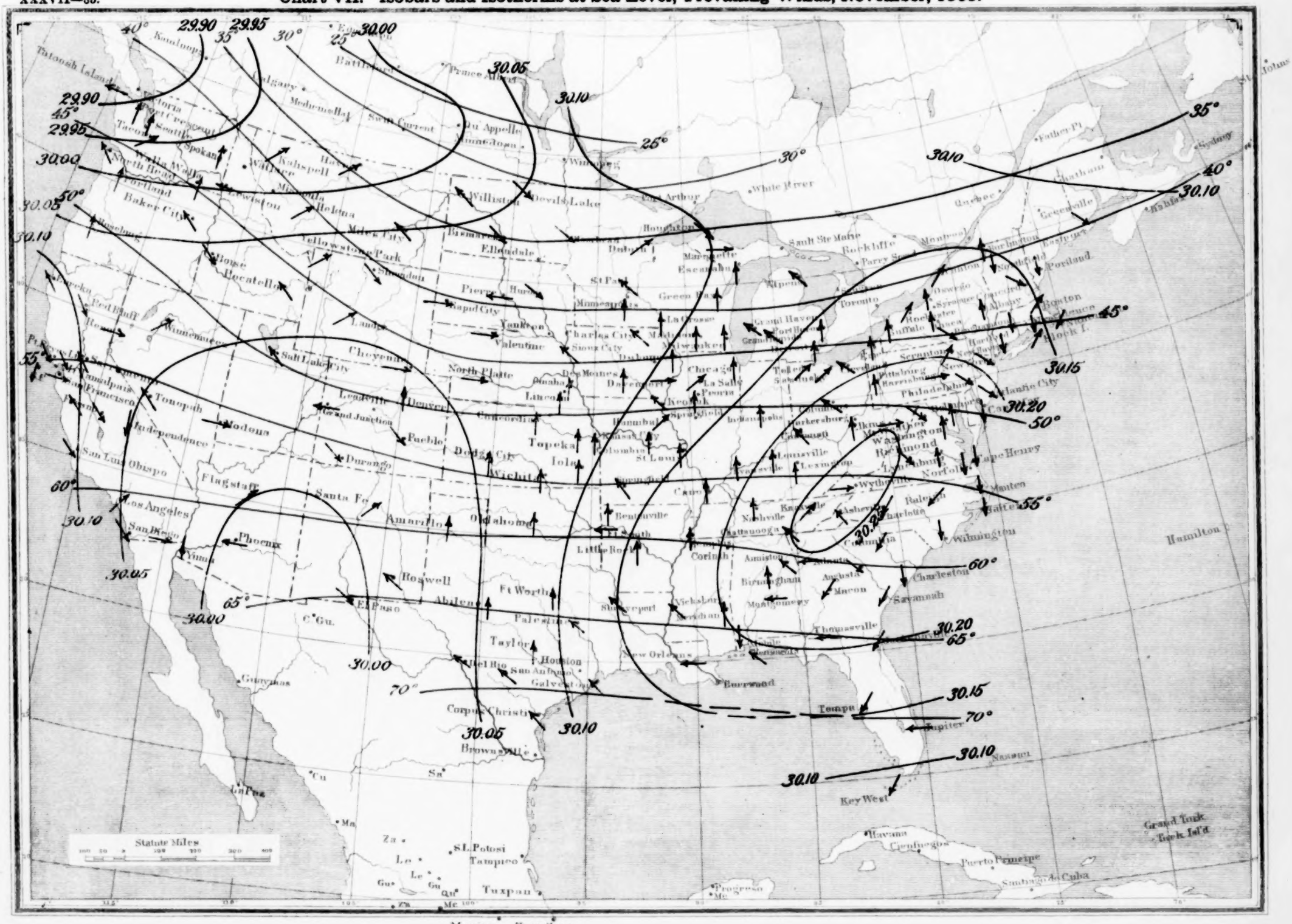
Chart VII. Isobars and Isotherms at Sea Level; Prevailing Winds, November, 1909.